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NUMBER 82 | FALL 2014

THE NEWSMAGAZINE OF THE UNIVERSITY OF PENNSYLVANIA SCHOOL OF VETERINARY MEDICINE

PIONEERING ONE HEALTH WORLDWIDE

Protecting Animals, People, and the Planet



THE FIRST FOOD LOSS & WASTE CONFERENCE STOPPING DANGEROUS ZOOSES INSIDE THE VETERINARY CLINICAL INVESTIGATIONS CENTER TRACKING ANTIBIOTICS ON ANDEAN FARMS STUDENT INSPIRATION AWARD WINNERS UPDATE

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ABOUT THE COVER:

Pioneers of One Health at Penn Vet include VMD-PhD student Laurel Redding, who is tracking antibiotic use on Andean farms (top photo on the cover); Dr. Ronald N. Harty (pictured on the cover, at right), who is developing treatments of zoonoses; and Dr. Zhengxia Dou (pictured on the cover, at left), who is spearheading the first-ever conference to tackle food loss and waste in America.



HENDRICKS

I'D LIKE TO HEAR
FROM YOU!

Email One Health ideas to
vetdean@vet.upenn.edu

What is One Health, exactly?

How would you respond to that question?

This past spring, during an interview with the *Penn Current*, I was asked to define the One Health concept. I faced a familiar conundrum. What snappy sound bite could explain One Health and its essential role in our work at Penn Vet? How could I succinctly communicate One Health so that its tremendous importance—to animals, people, and the planet—resonated with an audience beyond the veterinary community?

I am not the only vet perplexed by these questions. The topic inspired the AAVMC's Annual Conference, *One Health in Veterinary Medical Education*, which drew a record number of attendees in March. A recurrent theme was the necessity of developing a clear, concise One Health message so that it may finally reach a "tipping point" of awareness and understanding.

I attended the conference with Penn Vet's Director of Communications, Ashley Berke (who, I might add, recently led our Communications team to winning the inaugural AAVMC Communications Excellence Award). She took copious notes on tactics and terminology that may help us spread the word about One Health.

The challenge is not a lack of language or stories about One Health in action (as evidenced in the following pages). Several leading veterinary organizations have developed their own compelling ways of articulating One Health. Even at Penn Vet, we each have our own take. Gayle Joseph, from our Office of the Vice Dean for Research & Academic Resources, adds this eloquent note to her email signature: "Human health and animal health are so closely associated that neither can prosper effectively without the other."

However, finding the most *effective* words and having a *unified* message would serve our profession well—especially when we are asked point-blank to define One Health. I'd like to get your input. What words are you using to inform your families, clients, and colleagues about the impact of veterinary work on human and environmental health? What messages are helping you build interdisciplinary partnerships and projects?

When I was reappointed as dean in 2011, I made a decision to be purposefully open to global opportunities that would further Penn Vet's mission to become a leader in One Health. Penn Vet is a proud member of the One Health Initiative, a movement to forge collaborations between physicians, veterinarians, dentists, nurses, and other scientific and environmentally related disciplines.

And as you'll read in this issue, our students and faculty are One Health pioneers. Dr. Zhengxia Dou, Professor of Agriculture Systems, is spearheading the first-ever conference to tackle food loss and waste in America—bringing together experts from diverse fields (see page 4). Our Veterinary Clinical Investigations Center, directed by Dr. Dorothy Cimino Brown, is developing new drugs to heal both animals and humans (see page 8), while Dr. Ronald N. Harty is making major leaps toward effective treatments of zoonoses (see page 12). VMD-PhD student Laurel Redding is tracking antibiotic use on small Peruvian farms (see page 14), and our Student Inspiration Award winners continue to cultivate global well-being through groundbreaking projects (see page 18).

I hope this issue of *Bellwether* provides food for thought as you read about the many ways Penn Vet exemplifies and advances One Health. And I hope you'll drop me a line with your ideas on how we can inspire even more "a-ha moments," as we work to improve the lives of all species through the integration of human medicine, veterinary medicine, and environmental science.

—JOAN C. HENDRICKS, V'79, GR'80
THE GILBERT S. KAHN DEAN OF VETERINARY MEDICINE

WHAT ARE WE THROWING AWAY?

Penn Vet to host *The Last Food Mile*,
a first-of-its-kind conference on
food loss and waste in America

BY LOUISA SHEPARD



DID YOU KNOW?

About **1/3** of food
produced is wasted,
totaling **1.3 billion tons**
worldwide and **133**
billion pounds in the U.S.

The enormous amount of food waste generated from field to table to landfill in America is staggering, even more so when the resources needed to produce the food are considered.

This waste is occurring at the same time that families are going hungry. In fact, millions of Americans live in “food insecure” households, meaning that at times they do not have access or funds to purchase sufficient, safe, and nutritious food to meet their dietary needs.

Understanding the scope of food loss and waste in America, possible solutions, and the impact on food insecurity will be the focus of a unique national conference hosted by Penn Vet on **December 8 and 9 at the Philadelphia campus.**

The conference—*The Last Food Mile: Food Loss and Food Waste in the U.S. Food Supply Chain*—is funded by a \$49,000 grant recently awarded to Penn Vet by the United States Department of Agriculture (USDA) through its Agriculture and Food Research Initiative.

“This is the first conference of its kind in the country,” said Dr. Zhengxia Dou, Professor of Agriculture Systems at Penn Vet’s New Bolton Center, who is chairing the conference organizing committee, along with Penn Vet’s Drs. Alan Kelly, David Galligan, and James Ferguson.

“Food loss and waste occurs in the field at harvest, and post-harvest during processing, marketing, distribution, and consumption,” Dou continued. “However, there are few comprehensive studies examining the extent, breadth, and depth of food loss and waste.”

Why would a veterinary school play a leading role in contributing to America’s food security and sustainability?

As Penn Vet Dean Joan Hendricks explained, “Veterinarians ensure that animals produce plentiful, safe, and affordable food, improving their productivity while addressing environmental and animal welfare concerns. Penn Vet is perfectly positioned to tackle the challenge of helping to reduce food waste in America, with an eye to reducing hunger as well.”

The topic of food waste and loss is one of critical importance in America, the USDA National Institute of Food and Agriculture wrote in its letter awarding the grant



DID YOU KNOW?

Feeding the world’s growing population, **7 billion now and 9 billion by 2050**, is a daunting challenge.

to Penn Vet. “The effort to address food loss and food waste throughout the value chain is also a strength of this conference,” the USDA noted. “Given the growing interest in this area, now is a great time for a research conference.”

More than two dozen experts from around the world will participate in panel discussions highlighting four food sectors: industry, consumer, recovery, and behavior change. Conference attendees will represent a broad spectrum of professional backgrounds and expertise, including industry executives, academics, authors, researchers, psychologists, lawyers, and Penn students. An estimated 200 people are expected to attend.

“We want to raise the awareness and spread the word,” said Dou. “We want people to share their experiences to discover what works best. We want to build a community through networking to help find solutions.”

FOOD WASTE AND HUNGER

According to a 2010 USDA study, more than one-third of the food produced for human consumption in the United States is wasted each year—equaling 133 billion pounds of food, worth \$161 billion.

“It’s astonishing,” Dou said. “It’s an economic issue. It’s a moral issue. It’s a health issue. It’s a sustainability issue. We are wasting so much food, when so many children are hungry and don’t have enough nutritious food to develop and lead healthy lives.”



“We are wasting so much food, when so many children are hungry and don’t have enough nutritious food to develop and lead healthy lives. We want to build a community through networking to help find solutions.”

— Penn Vet’s Dr. Zhengxia Dou



The Last Food Mile conference furthers the **One Health** mission by bringing together experts across many food-related fields for the benefit of improving animal health, human health, and the environment.

Dou is part of the team at Penn Vet's Center for Animal Health and Productivity (CAHP), and she is perhaps the only soil scientist on the faculty of a veterinary school. After earning a master's degree in China, Dou came to the United States to get her PhD in soil chemistry from Penn State University. She joined the Penn Vet faculty in 1997.

In addition to global food security, Dou's research focuses on increasing efficiency in animal production systems and "agroecosystems," the transformation and transport of nutrients, and the environmental impact of animal waste.

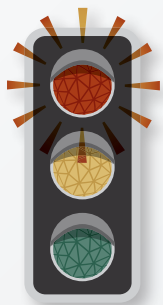
"At CAHP we emphasize productivity, such as how many pounds of milk a cow can produce, as well as profitability for the farmers and environmental sustainability," she said. "These are all part of the picture of food security."

Born and raised in China on a cooperative farm in an era of stagnation plagued with drought and famine, Dou has dedicated her life and work to food production and its environmental impact. "For at least the first 15 years of my life I was in chronic hunger," Dou said. "So food is very, very important to me."

WHAT IS FOOD SECURITY?

"Food security" means that people have reliable access to a sufficient quantity of affordable, nutritious food. Most people would think everyone in the United States would be food secure. Not so. In fact, 49 million Americans live in "food insecure" households, including 16 million children.

Of the 7 billion people in the world today, 843 million are food insecure. In the developing world, one out of three children is undernourished. Looking into the future, it is estimated that by 2050 the world will have two billion more people.



DID YOU KNOW?

Food **wastage** occurs at the **farm**, the **processing factory**, the **store**, and the **home**.

According to Dou, cutting down on food waste is critical to the sustainability of our planet—especially as the world population continues to grow. "How are we going to feed two billion more people when we now have more than 800 million people without enough to eat?" she asked.

"There are hungry people everywhere," Dou added, noting that the majority live in developing countries. "Most Americans don't have an understanding of hunger and undernourishment."

But in some poor areas of the U.S. there are "food deserts" lacking a steady supply of high-quality, fresh food. Convenience stores, maybe—but those often feature processed foods that are not nutritious.

THE IMPACT OF FOOD WASTE

Food production uses valuable resources: land, water, energy, nutrients. And it has negative environmental consequences: erosion, water pollution, greenhouse gas emissions. Food production and provision leaves a huge environmental footprint.

"There are a lot of efforts worldwide to push for greater food production output, but there is very little attention on how to maximize the use of the food we already produce," Dou said.

Food waste has come into focus in recent years. In 2011, the United Nations Food and Agriculture Organization reported that one-third of food produced worldwide for human consumption, or 1.3 billion tons of food, is wasted each year.

In addition, the 2010 USDA study estimates that 31 percent of edible food is lost at the end of the food supply chain in the United States, including retail grocery chains, restaurants, food service outlets, large food companies, and households.

As concern about food waste gains traction in the United States, some waste reduction and recycling efforts are afoot. These include bakeries and restaurants that donate their products, food pantries that distribute goods, and even people who glean food by going to fields to collect what is not harvested by farmers.

WRONG WAY

DID YOU KNOW?

49 million Americans live in food-insecure households, including **16 million** children.

But there is no concerted national effort for food waste reduction. Explained Dou, “We need concerted efforts to examine the issues in a systematic way: where and how much food wastage occurs along the food supply chain, where is the critical control point, what interventions are most effective, and how to move forward collectively as a society.”

PENN VET: LEADING THE WAY

Penn Vet is committed to the One Health Initiative, a movement to forge collaborations among physicians, veterinarians, nurses, and other disciplines related to science and the environment. *The Last Food Mile* conference furthers the One Health mission by bringing together experts across many food-related fields for the benefit of improving animal health, human health, and the environment.

“The One Health concept has an inherently embedded component: the health of the environment,” Dou added. “The health of humans and animals is ultimately affected by the health of the environment: the water we drink, the air we breathe, the soil we rely on for growing food.”

Penn students are getting involved in the food waste and recovery issue. As part of an undergraduate course called *The Politics of Food and Agriculture*, offered in Penn’s School of Arts and Sciences, Dou is helping design a student research project on quantification and characterization of food waste streams in a Penn dining facility. About 30 students are enrolled in the fall semester class, taught by professors Mary Summers and Jane Kauer.

“If you are going to change the behavior, it is better to start with young people,” Dou said. “They are the consumers of the new generation.”

After spearheading the conference, Dou and her team plan to organize a group of papers to be published in a scientific journal, *Global Food Security*, to share their findings.

“I know first-hand that access to adequate amounts of food is important,” Dou said. “It’s not hard for me to imagine how it feels to be hungry. That’s at the root of my interest in food and the reason food production and its environmental aspects have been my career.” 🍷

THE LAST FOOD MILE:

Food Loss and Food Waste
in the U.S. Food Supply Chain
A Conference at Penn Vet

DECEMBER 8 AND 9
HOUSTON HALL, PHILADELPHIA CAMPUS

KEYNOTE SPEAKERS INCLUDE:

- Kenneth Cassman, Professor of Agronomy at the University of Nebraska and Editor-in-Chief of *Global Food Security* magazine
- Barbara Ekwall, Senior Liaison Officer, Food and Agriculture Organization of the United Nations
- Jean Buzby, USDA Economic Research Services

CONFERENCE OBJECTIVES:

- Define the state of knowledge regarding food loss and waste along the U.S. food supply chain
- Create a framework for understanding food waste reduction policies and practices
- Build a collaborative, interdisciplinary team to conduct comprehensive research regarding food waste reduction

CONFERENCE PANELS INCLUDE:

- **Industry:** Speakers from the food manufacturing, processing, and distribution industries will discuss their programs regarding food waste and its reduction
- **Consumer:** Leaders in food service and private sectors will examine food waste, service, and household use
- **Recovery:** Experts will explore programs and innovations in waste reduction, as well as food recovery, food gleaning, and food banks
- **Behavior change:** Speakers from the fields of law, psychology, and academia will explore how social/cultural factors and food marketing influence people’s behavior on food purchasing

**FOR REGISTRATION AND MORE INFORMATION,
PLEASE VISIT [WWW.VET.UPENN.EDU/
LAST-FOOD-MILE-CONFERENCE](http://WWW.VET.UPENN.EDU/LAST-FOOD-MILE-CONFERENCE)**

A DOG'S TALE

The Veterinary Clinical
Investigations Center in Action

BY ELLEN LYON



Dr. Dorothy Cimino Brown with Rocky, a past participant in a VCIC pain management study.

Last summer Jeff Gillman noticed that his German shepherd mix, Reuben, had lost a lot of weight. After examining the dog, Reuben's veterinarian told Gillman to take him to a specialty animal hospital right away. Gillman knew just where to go: Penn Vet's Ryan Hospital. "It's the best emergency hospital," he said.

Penn veterinarians removed Reuben's spleen and did a biopsy. Back came the dreaded diagnosis of hemangiosarcoma, an aggressive cancer of the blood vessels, and a grim prognosis of two-to-four months without treatment and four-to-six months with chemotherapy.

"I was crushed, absolutely crushed," Gillman said. A dozen years earlier he had picked Reuben from a litter of puppies at a farmers market in Santa Cruz. Reuben rode in Gillman's backpack, with his paws hanging out, as they traveled the West Coast that summer after Gillman's freshman year of college. "At this point, he's one of my oldest friends," Gillman said.

So Gillman leapt at the opportunity when the veterinarians at Ryan Hospital told him about a study Reuben could participate in through Penn Vet's Veterinary Clinical Investigations Center (VCIC). The study compares the effects of the traditional Chinese medicine I'm-Yunity, a compound derived from the *Coriolus versicolor* mushroom, to standard chemotherapy treatment on survival time and quality of life for dogs with splenic hemangiosarcoma.



Dr. Dorothy Cimino Brown is director of the VCIC and a board-certified small animal surgeon. In a published study, Brown and Jennifer Reetz, an attending radiologist, showed that dogs with hemangiosarcoma that were treated with I'm-Yunity had the longest survival time reported for dogs with the disease. The VCIC is

collaborating on the study with a Chinese company that seeks to apply the Western scientific method to Eastern medicine.

Reuben's study is divided into three groups. One group is being treated with chemotherapy alone.

A second group is being treated with I'm-Yunity alone. And a third group is being treated with both chemotherapy and I'm-Yunity. Gillman doesn't know which group Reuben is in, but he believes it's one of the groups getting I'm-Yunity. It has been a year since Reuben's diagnosis, and he's still going strong.

The VCIC was created in 2005 to support Penn Vet investigators engaged in clinical research and to coordinate clinical trials of novel approaches for treating, managing, and preventing disease in animals.

"I love research and solving problems to make life better," said Penn Vet Dean Joan Hendricks, who founded the VCIC. Section chief for critical care at Ryan Hospital at the time, she envisioned a research center where "our animal patients might be able to get access to new treatments and interventions," often at less or no expense to the client. And the infrastructure would assist Penn Vet investigators with monitoring their subjects and meeting regulatory requirements, she said.

The center would translate research on novel treatments that began in lab animal studies to trials in companion animals that develop many of the same diseases as people.

The VCIC's first clinical trial was sponsored by Pfizer Animal Health, the result of an idea pitched to them by Hendricks. After nearly two years of negotiations, Hendricks felt confident that the VCIC model would work. "We always made sure there was something we could publish, no matter what," she noted.




Dr. Erica Himmelreich, oncology research intern, with Reuben.



"While all VCIC studies have direct applications to animal health, about half the trials running now have sponsors that are ultimately interested in application of the results to human health as well."

— Dr. Dorothy Cimino Brown, Director of Penn Vet's Veterinary Clinical Investigations Center



Clinical research nurse Rene Newman, CVT, prepares a sedated dog for an elbow injection in a stem cell study.

But Hendricks worried about the clients. Would they understand the risks and the lack of guarantees for their beloved pets? To ensure that clients do, VCIC staff conducts a rigorous informed-consent process, and Hendricks has been overwhelmed by their altruistic attitude. “It’s very important to them that their pet helps another animal. They go into it with their eyes open,” she said.

In addition, clients’ pets are “getting access to potential interventions that they wouldn’t otherwise have access to anywhere else,” Brown noted. In post-study surveys, clients routinely say they appreciate the frequent contact they have with the clinical trials nurses, including being given cell phone numbers if they have questions or problems.

Gillman sounded pleased about the care Reuben receives as part of the I’m-Yunity study. “He goes there and he has a nurse. They treat him like he’s the only [patient],” Gillman said.

More than three-fourths of clients participating in VCIC studies are new to Penn Vet, Brown noted. At the end of their studies, more than 90 percent say they would consider returning.

The VCIC began with one principal investigator (Brown), one veterinary nurse, and one study. It has grown

to include the participation of dozens of investigators aided by five veterinary clinical trials nurses.

Brown is responsible for one of the VCIC’s biggest successes so far. She collaborated with Dr. Michael Iadarola to study resiniferatoxin (RTX)—a naturally occurring substance from a Moroccan cactus-like succulent plant—as a potential treatment for chronic pain from canine bone cancer. They gave dogs one injection of RTX into the fluid around the spinal cord.

“The effect was stunning,” said Iadarola, a senior research scientist at the National Institutes of Health. An article from the May-June 2006 NIH Catalyst noted that: “All of the dogs experienced significant pain relief that lasted for the rest of their lives.”

Iadarola said such results with dogs provided a “tremendous incentive” to move to human trials—the first of which, involving patients with advanced cancer, is going on now. RTX initially had been tested on rodents. “To go directly from the rat to the human was a pretty big step,” he said. Often such large leaps in drug testing result in a high failure rate, Brown said, because the pre-clinical models don’t mimic what goes on with people, and the disease is artificially induced in the rodents.

ANIMALS SOUGHT FOR VCIC CLINICAL TRIALS

Plant-Derived Supplements to Boost Quality of Life in Geriatric Dogs

ELIGIBILITY: 10 years of age or older; not on any medication

BENEFITS: Study visits; blood work; \$100 gift card on completion of all study visits

Stem Cell Therapy for Dogs with Elbow Dysplasia (FMCP form)

ELIGIBILITY: Diagnosis of fragmented medial coronoid processes (FMCPs); younger than 2 years; weighs at least 33 pounds; clinical signs of arthritis

BENEFITS: Orthopedic exams; arthroscopic surgery and removal of FMCPs; adjunctive stem cell or hyaluronic acid therapy; follow-up care for one year

Palladia® for Dogs with Appendicular Osteosarcoma

This trial is an option for owners who decline chemotherapy, but want to try to control cancer using oral medication at home.

ELIGIBILITY: Diagnosis of OSA; no metastasis to lungs

BENEFITS: Study-related costs; blood work and chest radiographs; study drug and supportive medications

Comparison of Three New Chemotherapy Drugs for Dogs with Lymphoma

ELIGIBILITY: Diagnosis of multi-centric lymphoma; weighs at least 33 pounds; not receiving treatment for lymphoma

BENEFITS: Study visits and treatments; \$1,000 towards future care at Penn Vet

For more information on these and other studies, visit www.vet.upenn.edu/vcic, call 215-573-0302, or email vcic@vet.upenn.edu

Follow VCIC on Twitter @PennVet_VCIC

But when testing makes a stop in between with companion animals, they “share the same environment [with humans]. Many of the same risk factors are going to be present as in people,” Brown said. That makes the results more likely to be replicable in humans. As Hendricks noted, the loss of laboratory conditions “makes the science much harder and much, much closer to reality.”

Studies with companion animals also allow researchers to better gauge a drug’s possible side effects. Owners can assess their dog’s pain, bladder and bowel function, and activity level at home, and notice any personality changes, Iadarola said.

It is a natural progression for the only veterinary school in the country founded through a medical school to also be the first to create a research facility dedicated to translational research. The VCIC exemplifies Penn Vet’s longstanding commitment to One Health, which aims to advance health care and well-being for animals and humans through collaborative, interdisciplinary practices. The VCIC’s goal is to get cutting-edge therapies to patients—both animal and human—as efficiently as possible.

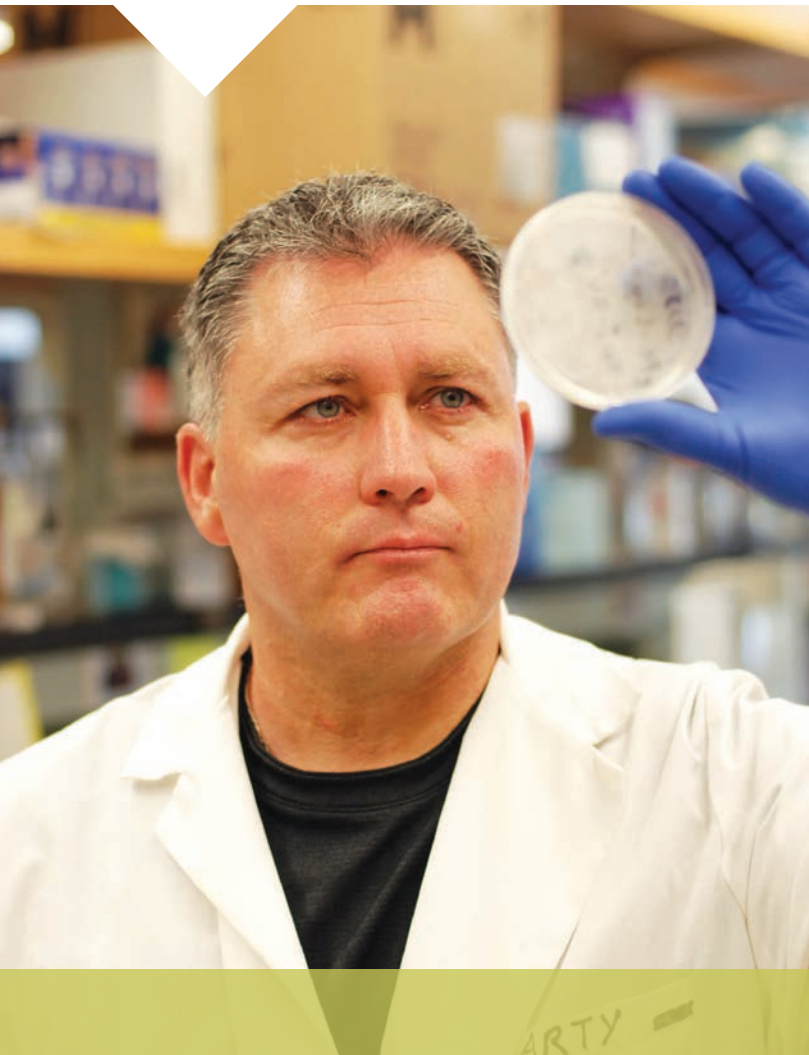
The VCIC has completed 46 studies, according to Managing Director Michael DiGregorio. Currently, 19 trials involving 18 faculty members are underway, and another six trials are being planned. While all VCIC studies have applications to animal health, about half the trials running now have sponsors that are ultimately interested in application of the results to human health as well, Brown said.

Industry representatives, government organizations, individuals, and foundations fund the VCIC’s studies, DiGregorio said. Subjects are recruited using traditional advertising, web and social media, and through the network of more than 3,000 veterinary practices that refer the pets that make the 30,000 visits to Ryan Hospital each year.

The VCIC recently finished its first large animal study at New Bolton Center, which looked at a novel estrus synchronization protocol in cows. Another large animal trial—studying risk assessment of cross-contamination among different species including cows, goats, and sheep—is underway, DiGregorio said.

Gillman finds universal and personal value in the VCIC’s work. Reuben’s participation in a study may lead to better prognoses for dogs with the same kind of cancer in the future. “I’m glad that Reuben gets to help. We take that seriously,” Gillman said. “I think the study has been a blessing. I don’t think that he would have lasted a year. The study has allowed me to really cherish and enjoy him.”

STOPPING DANGEROUS VIRUSES IN THEIR TRACKS



Penn Vet's Ronald N. Harty leads new research toward effective treatments

BY KATHERINE UNGER BAILLIE

People fear diseases such as Ebola, Marburg, Lassa fever, and rabies, for good reason; they have high mortality rates and few, if any, possible treatments. Up to 90 percent of people who contract Ebola, for instance, die of the disease.

These diseases are zoonoses—infections that can be passed between humans and animals. Humans can contract Lassa fever and rabies directly from animals, and Ebola, Marburg, and HIV are all believed to have originated in animals. It's likely that the recent Ebola outbreak in West Africa, as with previous outbreaks of the disease, arose when a person or community came into contact with an infected great ape.

Committed to taking a One Health perspective, and facing a gaping need for therapies against these life-threatening ailments, researchers at the University of Pennsylvania School of Veterinary Medicine have been applying their expertise in infectious diseases toward understanding the molecular workings of these viruses. Their research is helping identify ways to exploit the microbes' own sinister strategies to effectively stop the pathogens in their tracks.

Penn Vet's Dr. Ronald N. Harty, an associate professor of microbiology, recently teamed with colleagues to identify and develop compounds that can reduce the ability of a virus to spread infection. Reporting their findings in two studies published in the *Journal of Virology*, Harty and his team rounded up several prototypic compounds with the potential to one day serve as broad-spectrum anti-viral drugs.

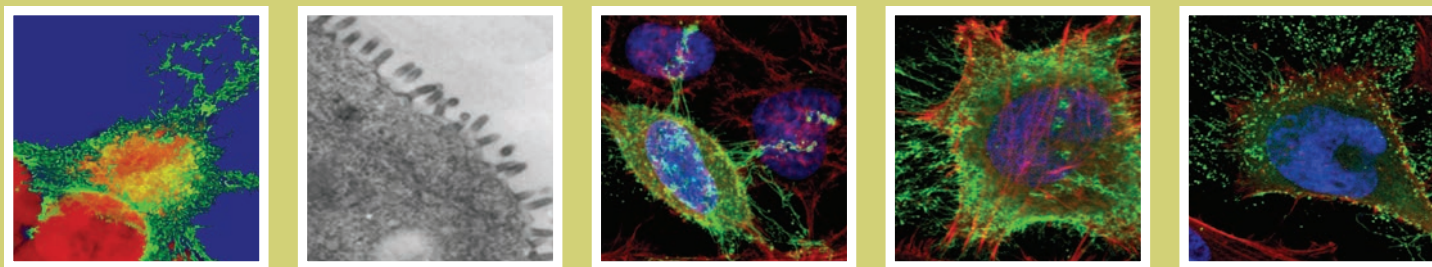
Viruses can be powerful agents of disease, but they are relatively powerless on their own. In order to reproduce, they must take over host cell proteins and machinery. When they're ready to exit the cell, they again use host molecules in the cell membrane in a process called "budding." Then they move on to other cells, spreading infection.

"What happens is the virus actually hijacks or recruits different host proteins and host functions and makes use of those proteins to efficiently get out of the cell," Harty said.

It is this step that has captured the interest of Harty and colleagues in recent years. In their two new reports, they have zeroed in on the budding process, attempting to block it and reduce viral infections to a level a person's immune system would be able to control more easily.

In the first paper, the researchers examined the interaction between the human protein Tsg101 and the viral protein sequence known as PTAP, which is present in proteins that play important roles in the budding of Ebola and HIV. This interplay is important for the virus to break free of the host cell's plasma membrane and continue infecting other cells. If this interaction is blocked, many of the viruses will remain tethered to the cell membrane, unable to bud out and perpetuate the infection.

Though the viruses under study are too dangerous to manipulate in the Penn Vet lab, which is a Biosafety Level-II (BSL-II) facility, Harty's team was nonetheless able to examine the interactions between host and viral proteins by



From left to right: Budding of the Ebola virus VP40 protein is shown in green. Cell background is shown in red. Electron micrograph of virus particles tethered to the plasma membrane of the cell. Our budding inhibitors function by promoting this tethered phenotype and preventing the virus from “pinching off” from the cell membrane and spreading to other cells. Ebola (Zaire strain) VP40 protein budding from cells as VLPs (virus-like particles shown in green). Cellular actin is shown in red, and cell nuclei are shown in blue.

looking at what are known as virus-like particles, or VLPs. VLPs cannot infect cells, but are useful for studying viral proteins. In this case, the researchers produced VLPs using a Junin viral matrix protein of which PTAP is a part. The pathogenic strain of Junin virus causes Argentine hemorrhagic fever and is considered a potential bioterrorism agent.

Harty’s team used the VLPs to screen dozens and dozens of small molecules to find some that would block the interaction between Tsg101 and PTAP. A promising candidate emerged called compound 0013.

Testing the effectiveness of this molecule in their VLP assay, the team found that it reduced the ability of the Junin VLP to bud off from human cells in culture by more than 90 percent. It was similarly effective against proteins that are found in Ebola and HIV.

As a final confirmation of the compound’s potential to stop a virus from spreading, they tested it against an actual virus: the nonpathogenic vaccine strain of the Junin virus. The researchers found that it significantly decreased viral budding in a dose-dependent manner.

The second paper used an analogous strategy to try to block another host-virus interaction, this time examining the viral protein sequence called PPxY—found in the matrix proteins of Marburg, Ebola, and rabies viruses as well as a host of other dangerous pathogens. PPxY interacts with an enzyme in human cells called Nedd4 during budding.

Again, after screening many small molecules to see which would best inhibit the PPxY-Nedd4 interaction, the team found two strong candidate molecules. Further testing showed that these two molecules could effectively inhibit budding of rabies virus, Marburg VLPs, and other PPxY-containing viruses.

Reining in budding even by a fraction could significantly decrease the likelihood that an infection will get out of control. According to Harty, “By slowing down virus budding, we may allow an individual’s immune system a chance to develop a robust and protective response.”

With further testing, the compounds that Harty has pinpointed may one day serve as important anti-viral therapies.

Drugs that target host-virus interactions, such as the proteins involved in budding, have a distinct advantage over drugs that target viral proteins only: they make it difficult for a virus to mutate in such a way that it would develop resistance against the treatment.

“If it did that, the virus would be compromising its own ability to exit the cell and continue spreading infection,” Harty explained.

However, a focus on the host side also comes with a potential drawback: the possibility that a drug might compromise the normal function of the protein. Further refinement of the drugs could reduce this possibility, but when dealing with severe diseases such as Ebola and Argentine hemorrhagic fever, the benefits of treating an otherwise fatal condition would outweigh potential side effects, Harty said.

These drugs could also be offered in a cocktail with additional compounds that block other stages of the virus life cycle, further amplifying their power. The next steps for these potential anti-virals will be to test them in animal models.

For Harty and his team of researchers, the potential clinical relevance of these early findings is especially rewarding.

“The main reason we’re excited is that if we can come up with something that’s effective, it could have a very broad-spectrum appeal,” Harty said. In addition to serving people worldwide, more effective anti-viral treatments “would give us a great way to protect the military, government workers, or first responders from these very dangerous diseases.”

Harty collaborated with Penn Vet’s Jianhong Lu, Ziying Han, Yuliang Liu, Wenbo Liu, Gordon Ruthel, and Bruce D. Freedman and U.S. Army Medical Research Institute of Infectious Disease scientists Michael S. Lee and Mark A. Olson on both studies. On the second paper, the team was expanded to include Benjamin Davis and Matthias J. Schnell of Thomas Jefferson University and Jay E. Wrobel and Allen B. Reitz of Fox Chase Chemical Diversity Center. The research was supported in part by the National Institute of Allergy and Infectious Diseases.

LAUREL REDDING: MONITORING ANTIBIOTIC USE ON ANDEAN FARMS



BY KATHERINE UNGER BAILLIE

What Redding found is telling of the challenges of making a living in these remote and often impoverished areas, and of the significant role that veterinarians can play in protecting animal and human health around the world.

When a dairy cow in the United States is given antibiotics for an illness, its milk is discarded until the drug clears its system. Since most dairies have dozens or even hundreds of cows, the lost milk from one or two is scarcely noticed.

On small dairy farms in Peru, however, where a farmer may own only a few cows, withholding several days' milk from a treated animal takes a much greater financial toll. The temptation to continue selling milk containing antibiotic residues can be great.

Given the important public health consequences of antibiotic use in food production animals, Laurel Redding thought it was a topic worth investigating. "In veterinary medicine, and in production medicine in particular, antibiotics are a particularly hot topic nowadays," said Redding, a student in the VMD-PhD program at the University of Pennsylvania's School of Veterinary Medicine and Perelman School of Medicine.

However, few people have studied antibiotic use on small farms in developing countries. As Redding noted, "In many parts of low- and middle-income countries, the majority of the population is employed in farming on small farms."

For seven months in 2012 and 2013, Redding traveled around Cajamarca in the northern highlands of Peru, surveying dairy farmers, veterinarians, and others involved in the dairy industry. Her research explored the extent of antibiotic use, how educated farmers were about using drugs in their animals, and how much of those drugs were making their way into the milk and milk product supply in the area. What she found is telling of the challenges of making a living in these remote and often impoverished areas, and of the significant role that veterinarians can play in protecting animal and human health around the world.

Aside from owning and riding horses and some work on stud farms, Redding did not have much of a background in large animals, much less agriculture, when she arrived at Penn Vet eight years ago. But through her dual-degree program under the mentorship of faculty members Dr. Gary Smith, Professor of Population Biology and Epidemiology, and Dr. David Galligan, Professor of Animal Health Economics, she developed a joint passion for food production and the developing world—with veterinary medicine being the thread connecting the two. She chose to pursue her PhD in the Center for Clinical Epidemiology and Biostatistics at Penn Medicine, with a focus on the use of drugs across large populations of animals. She found an ideal advisor in Dr. Sean Hennessy, Associate Professor of Pharmacology in the medical school.

Dr. Jorge Guerrero, an adjunct professor at Penn Vet, connected Redding with the nonprofit organization Foncreagro, which supports Peruvian farmers with veterinary care and other assistance. The organization



Above: Jorge Guerrero, an adjunct professor at Penn Vet, connected Redding with the nonprofit organization Foncreagro, which supports Peruvian farmers with veterinary care and other assistance. The organization helped her launch and carry out her research projects.

Below: Characterized by small farms, Peru's Cajamarca is one of the country's major dairy-producing regions. For seven months in 2012 and 2013, Redding traveled around Cajamarca, surveying dairy farmers, veterinarians, and others involved in the dairy industry.





Traveling to remote and rural farms across the area, Redding made connections with 156 farmers. “The takeaway message from my study was kind of a good news-bad news situation,” Redding said.

helped her launch and carry out her research projects. She also worked with a research assistant who was a vet student in the region.

Characterized by small farms, Peru’s Cajamarca is one of the country’s major dairy-producing regions. Most farms have fewer than 15 cattle. Roughly 60 percent of the milk produced in the region goes to large milk-processing companies, collected by milk trucks that visit the farms twice a day. Thirty percent goes to cheese producers and the remaining 10 percent is sold on the open market, often in roadside stands where farmers ladle milk into plastic bags for waiting customers.

As Redding discovered, farmers in Cajamarca typically obtain antibiotics either directly from veterinarians who travel to the farms (and who are supported by Foncreagro) or from feed stores. They use the drugs to treat cows for mastitis and other reproductive illnesses as well as for diarrhea.

In dairy cows, antibiotics can prove extremely useful for preventing and treating infections, leading to improvement in overall health and productivity. Yet their use promotes the rise of resistant strains of bacteria on the farms, putting workers at risk of infection from these tenacious bugs. In addition, allergies, toxicity, and antibiotic resistance can result if people consume drug-tainted milk.

Traveling to remote and rural farms across the area, Redding made connections with 156 farmers in the region, investigating both their understanding and use of antibiotics in their animals. In surveying the farmers, Redding administered questionnaires and collected discarded drug packaging. She used the packaging as another means of evaluating the prevalence of drug use on the farms,

comparing the amount of packages discarded to the farmers’ self-reported use of drugs on their animals.

“The takeaway message from my study was kind of a good news-bad news situation,” Redding said.

The good news was that, overall, Redding found that antibiotic use on the farms was relatively low—though higher, according to the discarded packaging, than the farmers themselves reported. In addition, antibiotics were generally only used for therapeutic purposes, which is less risky than chronic, prophylactic use when it comes to encouraging the emergence of antibiotic-resistant bacteria.

Another piece of good news that emerged from Redding’s work was that farmers were generally knowledgeable about the risks of using these drugs.

“They knew that their use posed a risk to their animals and that the products from the cow should not be sent to the milk truck,” she said.

But that wasn’t all that Redding found.

“The bad news was that they didn’t practice what they knew,” she said. “They often continued sending milk from treated cows to the milk truck, and then the milk companies tended to accept this milk.”

Of the farmers Redding surveyed who were treating their cows with antibiotics, she found that 92 percent continued selling that milk. And although milk companies can use a simple test to determine whether milk is contaminated, they often did so after collecting milk from many providers, at which point any contamination from a single cow’s milk would likely be diluted and undetectable.

Also of concern were anecdotal reports of farmers selling contaminated milk on the open market as a way to avoid



the milk trucks' antibiotic testing. "There have been studies that show that milk sold on the open market has very high rates of contamination," Redding noted.

Both the veterinarians who prescribed antibiotics and the feed store staff who sold the drugs told Redding that they instructed farmers on appropriate measures to prevent drugs from getting into the milk. Withdrawal times, or the number of days it takes a drug to clear a cow's system, often ranged from five to seven days.

While Redding sees education as critical to improving farmers' adherence to withdrawal times, she believes the reasons for not obeying withdrawal times and continuing to sell milk are economic in nature. Furthermore, unlike in the United States—where farmers face stiff financial penalties for failing to withhold milk from treated cows—the farmers in Cajamarca received no such penalty or only very mild ones.

"Neither the milk companies nor the farmers have the motivation to address the issue," Redding said. "The truck companies can't afford to lose providers because there is a lot of competition for the product, and the farmers can't afford to lose that daily income."

One solution, Redding said, would be to implement a system of either incentives for selling "clean" milk or a system like that in the U.S., whereby farmers get penalized for selling milk with antibiotic residues. Such a system might require government involvement to ensure high-quality animal food products.

Another possible intervention that Redding has considered is the formation of cooperatives, an effort that has worked in other countries around the world. "Because you have more farmers contributing, there is more accountability," she said. "It's also a win for the milk

companies because they can get a much larger volume of milk from one area instead of driving out to 20 really small farms. I would love to try to do an intervention like that in Cajamarca."

Another difference between the U.S. and places like Cajamarca is that the Peruvian farmers generally use older-generation drugs, such as oxytetracycline and penicillin, which have longer clearance times. U.S. farmers have access to—and the money to buy—newer generation drugs which have much shorter withdrawal times.

Repeatedly using the same drugs can escalate the risk of resistant strains arising. A logical follow-up study, Redding said, would be to examine the actual degree of antibiotic-resistant organisms on the Peruvian farms.

"The presumption is it's going to be low because the use of antibiotics is infrequent," she said. "Well, let's test that and make sure that is the case."

After Redding graduates, she hopes to continue exploring the issue of drug use in animal food production—a prime example of the One Health Initiative, which recognizes the inextricable links between human, animal, and environmental health. By doing so, she will be helping to ensure food quality and safety, solid livelihoods for farmers, and animal well-being. And she views her veterinary training as the essential foundation of that future work.

"The issue of animal protein is going to be hugely important in the future," Redding said. "As incomes increase in developing countries, the demand for animal protein is going to expand exponentially in the coming years. Veterinarians have a very important role to play in making animal food production a safe process both for consumers and for the animals." 🍷



Where are they now?

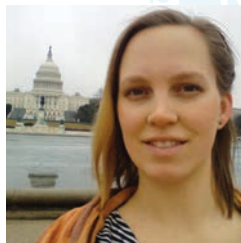
Student Inspiration Award winners continue to make a global One Health impact

INTERVIEWS BY KAREN GROSS

Penn Vet students are known to go above and beyond in their studies and careers. Launched in 2008, the Student Inspiration Award has recognized those with the potential to advance the very frontiers of veterinary medicine—providing a \$100,000 unrestricted grant to realize exceptional veterinary missions and projects. Prior to a proposed reunion this year, we caught up with past winners to find out how the grant has impacted their paths and their profession.



**Rachel Toaff-
Rosenstein, V'09**
2008 award winner



**Catherine Brinkley, V'15
(expected)**
2009 award winner

WHAT DID YOU WANT TO ACHIEVE WHEN YOU MADE YOUR WINNING PROPOSAL?

My primary goal was and still is to improve food animal welfare, and especially veterinary knowledge and involvement in these crucial issues. To this end, I sought to further my education and skill set by completing a PhD focused on cattle behavior and welfare.

WHAT IS YOUR CURRENT COURSE OF STUDY?

I am in the midst of running my third and final animal trial focused on sickness behavior in beef cattle with Bovine Respiratory Disease. Given that this disease is one of the most problematic for the cattle industry, and that current diagnostic tools are insufficient, I hope that this work will contribute to the development of automated systems to detect behavioral changes in sick animals—and, down the line, improve outcomes for both cattle and producers.

DID THE STUDENT INSPIRATION AWARD INSPIRE YOUR CAREER, AND IF SO, HOW?

When I started veterinary school, I always imagined that I would work in some specialty field of small animal medicine, because I was bothered by the numerous welfare issues associated with raising and killing food animals. My approach has changed 180 degrees; I now believe that precisely because I am motivated to improve the lives of food animals, it is my obligation to be as involved as possible. When I say involved, I mean to contribute to the well-being of producers, their animals, and the consumers of these products. Only by being intimately involved, and having a balanced approach, can I hope to change the world—which is, as I see it, the goal of the Student Inspiration Award, and what I have been inspired to do.

WHAT DID YOU WANT TO ACHIEVE WHEN YOU MADE YOUR WINNING PROPOSAL?

My proposal was to support a lifetime of work connecting the veterinary profession with the design profession, building off my previous work in zoo exhibit design and master's degree in virology. Penn is the perfect place for such synergy, as the campus is small and there are many opportunities to work with celebrated faculty at the numerous world-renowned schools.

WHAT HAVE YOU ACCOMPLISHED?

The award directly supported my PhD studies at Penn's School of Design. I completed my PhD in December 2013 and have published six academic articles over the course of my studies while engaging in local food politics in Philadelphia. My dissertation focused on injecting veterinary knowledge into food system planning and design by looking at the health and environmental impact of farmland food delivery systems for animals and humans alike. I played an integral role in putting together the 2013 conference on Feeding Cities (www.feedingcities.com) and producing the white paper from that conference. I've also worked with many local community gardens, school gardens, food pantries, and agricultural extension groups as a volunteer and in an advisory capacity.

DID THE STUDENT INSPIRATION AWARD INSPIRE YOUR CAREER, AND IF SO, HOW?

The Inspiration Award set the trajectory for my future career, and for that I am ever grateful for the chance to work in such a vibrant emerging arena at the confluence of so many interesting disciplines: public health, food policy, medicine, nutrition, and environmental planning.



Brittany Gross, V'13
2010 award winner

WHAT DID YOU WANT TO ACHIEVE WHEN YOU MADE YOUR WINNING PROPOSAL?

The dairy industry in Thailand contains many small, family-owned dairy farms; it is traditionally the females of the house that perform the majority of the labor. My project is primarily focused on empowering the dairy industry, but ultimately the women farmers, by providing access to educational opportunities, international collaboration, and progressive ideas to support their farming industry.

WHAT HAVE YOU ACCOMPLISHED?

Originally, my primary goal was focused on creating a structure or "Dairy Education Center" in Thailand that would be the physical site for learning and support. In reality, the DEC organization has taken the form of mobile teaching workshops and has been an avenue for individuals from the U.S. and Thailand to collaborate on animal health projects. Twenty students and two veterinarians representing five different veterinary schools have traveled to Thailand to collaborate with hundreds of Thai students and farmers. We have offered workshops and lessons on a variety of subjects (beef, poultry, agriculture, fishing), not just dairy. The idea of the mobile teaching workshops has allowed the organization to be resilient and change with demands.

DID THE STUDENT INSPIRATION AWARD INSPIRE YOUR CAREER, AND IF SO, HOW?

I am currently an ER veterinarian at a nonprofit animal hospital, DoveLewis Emergency Animal Hospital in Portland, Oregon. The award provided an unparalleled opportunity to follow a dream of mine. I know I will continue to be involved in my project for decades into the future.



Jonathan Lustgarten, V'13
2011 award winner

WHAT DID YOU WANT TO ACHIEVE WHEN YOU MADE YOUR WINNING PROPOSAL?

My vision was to use the strength of the Web and technology to assist veterinarians who participate in animal care during disaster relief.

WHAT HAVE YOU ACCOMPLISHED?

I have established a front-facing website (<http://recover.totalvet.net>) that allows people to sign up and help in disasters and recovery. I also have developed a web-based, electronic medical record system that utilizes common devices such as tablets to gather and store relevant information at the point of care in real time. Currently, the system can handle 10,000 concurrent users and up to 250,000 animals.

WHAT'S NEXT FOR YOU, AND WHAT WOULD YOU SAY TO POTENTIAL APPLICANTS?

I am applying for federal grants to expand and fund this project to fulfillment and deployment. I would advise the applicants to find an idea that you are passionate about that is not only a specific task, but also a general shift in how veterinary medicine operates. There is really no limit to what a veterinarian can accomplish.

WHAT IS YOUR CURRENT JOB?

I am working as a Business Resident at Red Bank Veterinary Hospital, learning more management of large networks with multiple specialties and the required interaction and detail to successfully run a 100,000-patient-a-year business.

DID THE STUDENT INSPIRATION AWARD INSPIRE YOUR CAREER, AND IF SO, HOW?

The award provided the seed funds to allow me to follow my ultimate dream of bridging the gap between technology and veterinary medicine in a way that has never been attempted before in any medical field (human or animal).



A. Nikki Wright, V'14, &
Lisa Gretebeck, V'14
2012 award winners



Nikhil Joshi, V'15
(expected)
2013 award winner

WHAT DID YOU WANT TO ACHIEVE WHEN YOU MADE YOUR WINNING PROPOSAL?

Nikki: Together we envisioned a cooperative-style goat breeding facility and farm, run by families, which would serve as a breeding stock for a micro-lending program. Furthermore, we sought to implement a sustainable animal health leadership training program via the cooperative.

WHAT HAVE YOU ACCOMPLISHED?

Nikki: Since 2012, we have successfully coordinated four trips to Haiti, brought over 20 veterinarians and veterinary students to Haiti to aid in our mission, and provided veterinary care for over 1,000 animals. We are now working closely with five farmers who are our “animal health leaders” to further maximize production and welfare. In order to ensure long-term sustainability of the program, we have applied for 501(c)(3) nonprofit status. We continue to bring in new veterinary student leadership and maintain strong ties to the communities we work with.

WHAT IS YOUR CURRENT JOB?

Nikki: After graduating in May, I started my job as an associate veterinarian at the Banfield Pet Hospital in Fairless Hills, Pennsylvania, where I am honored to be working with another VMD, Dr. Kirk Breuninger. Ultimately I would like to return to Penn and contribute to our One Health efforts. Particularly, I hope to find a way to work with underserved communities (domestically and abroad) via public health, shelter animal medicine, and production medicine.

Lisa: I'm working at the National Institutes of Health on research related to emerging zoonoses. As a researcher for the National Institute of Allergy and Infectious Disease, I aim to better understand the pathogenesis of the Middle East Respiratory Syndrome coronavirus. Our goal is to develop a vaccine to prevent the spread of the virus.

DID THE STUDENT INSPIRATION AWARD INSPIRE YOUR CAREER, AND IF SO, HOW?

Lisa: The experience has helped me better understand the potential impact that veterinarians can have to improve both human and animal health. You leave Penn Vet with feelings of empowerment and responsibility to tackle large-scale issues—not only related to the bubble of veterinary medicine—but also to human medicine, public health, and the environment.

WHAT DID YOU WANT TO ACHIEVE WHEN YOU MADE YOUR WINNING PROPOSAL?

I wanted to inspire veterinary students to think about ways they can help add value to the veterinary industry through innovation. As tuition and student debt loads increase, so does the number of new veterinarians graduating each year. This trend is unsustainable and I hope to encourage students to think outside the box for their future.

WHAT HAVE YOU ACCOMPLISHED?

I am currently conducting the first-ever business plan competition for veterinary students. More information on the Veterinary Innovation Challenge can be found at www.vetinnovation.com.

WHAT DID YOU LEARN?

In my effort to raise money for the competition, I discovered the value of persistence. My initial grant from Penn Vet included a stipulation that an additional \$10,000 be raised from an external source. Countless phone calls, meetings, and rejections later, I found a sponsor in AVMA-PLIT.

WHAT'S NEXT FOR YOU, AND WHAT WOULD YOU SAY TO POTENTIAL APPLICANTS?

Next up are the Veterinary Innovation Challenge finals on September 6 in Philadelphia. For potential Inspiration Award applicants, I would hope they consider the long-term effects on animals and veterinarians. A venture is only successful if it has a sustainable impact.

DID THE STUDENT INSPIRATION AWARD INSPIRE YOUR CAREER, AND IF SO, HOW?

I built a solid network, having reached out to numerous leaders in the veterinary industry to sponsor, mentor, or judge the competition. It also reignited a passion for entrepreneurship—I haven't started a company yet, but I hope to.



◀ Farm Show

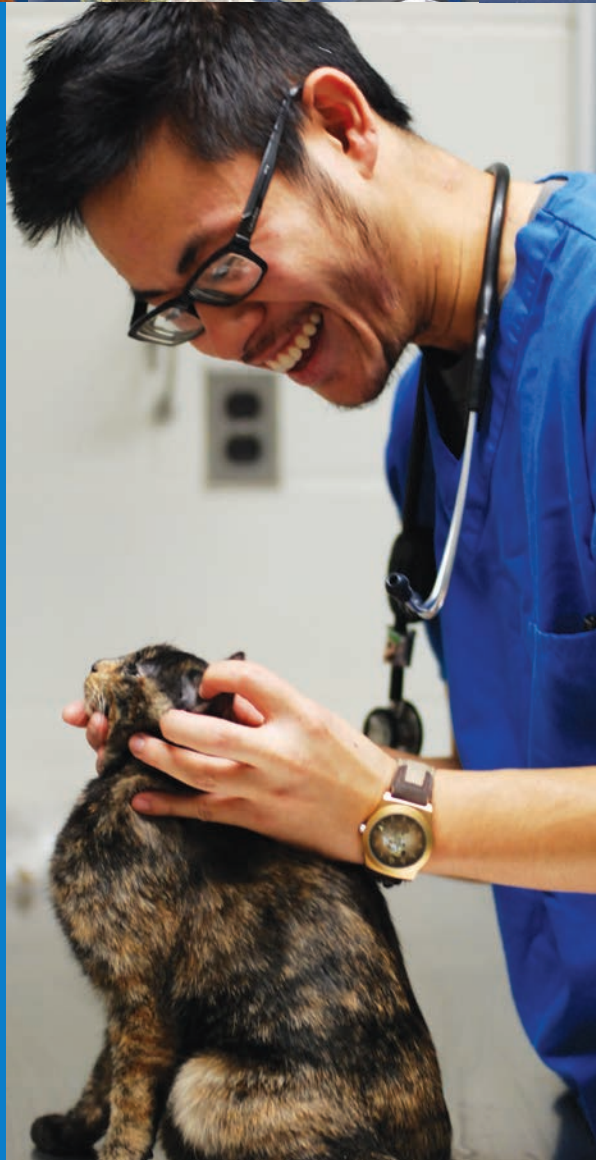
Penn Vet had a booth at the Pennsylvania Farm Show in Harrisburg. Visitors spoke with clinicians, students, and staff to learn more about Penn Vet and how veterinarians serve the Commonwealth of Pennsylvania.



events

Martin Luther King, Jr. Day of Service ▶

For the sixth year, Penn Vet has provided free wellness exams to community pets on Martin Luther King, Jr. Day of Service. Vet students administered check-ups and vaccines to approximately 200 dogs and cats from local Philadelphia neighborhoods.





► 2014 Commencement

Family and friends gather to celebrate the Class of 2014 as they begin their veterinary careers. Class president Zachary Kern addresses his classmates (below) and receives the class flag from Diane Eigner, V'80 (right). The commencement address was given by Dr. Jan K. Strother, immediate past vice president of the American Veterinary Medical Association.



► SCAVMA Teaching Awards

Every spring, the student body honors the faculty and staff at the SCAVMA Teaching Awards. The William B. Boucher Award for Outstanding Teaching at New Bolton Center was presented to Dr. Holly Stewart by Dr. Ray Sweeney (right). The prestigious Zoetis Distinguished Teacher Award was presented to Dr. James "Sparky" Lok by SCAVMA President Jeremy Kimmelstiel (middle right). Members of the Shelter Medicine Club receive the Community Service Award (bottom right).



► AKC and Theriogenology Foundation Visit

Members of the American Kennel Club and Theriogenology Foundation visited Penn Vet on the occasion of funding a new residency program in reproductive medicine for companion animals. A tour and demonstrations were given at the Penn Vet Working Dog Center (above). (At right, L to R) Dean Joan Hendricks, AKC Board Chairman Alan Kalter, Dr. Charles Franz, and Dr. Anita Migday.



PLANNED GIVING PROFILES

Over the years, Penn Vet has received generous support from many donors whose planned gifts have furthered the School's mission by funding scholarships, professorships, cutting-edge research, and more. These special donors are members of the School's Veterinary Heritage Circle and the University's Charles Custis Harrison Society. Here, we profile a few of these special supporters and share what inspired them to make such a meaningful commitment.



MARKART



FLINT



RINEHART

MIRANDA MARKART AND ETHAN FLINT

As the youngest members of the Veterinary Heritage Circle, Miranda (age 12) and Ethan (age 11) can thank their uncle, Frank Rasmus, for instilling in them a sense of the importance of philanthropy and giving back to causes with special meaning to them. Together with Frank, Miranda and Ethan have supported many causes at Penn and beyond, including the Morris Arboretum and Guiding Eyes for the Blind. Since both Miranda and Ethan love animals, adding Penn Vet to their charitable activity as a beneficiary of their retirement accounts was a natural fit. Their generosity has and will continue to support clinical trials through their endowment for the Veterinary Clinical Investigations Center. They believe in the potential of this type of research to benefit humans and the pets that mean so much to us.

CAROL ANN RINEHART

Carol was born in Texas in 1936 and was known throughout her life as an ardent lover of both wild and domestic animals—as well as for her keen intelligence and sharp wit. As an Executive Secretary with the United States Postal Service, she spent most of her adult life in Arlington, Virginia, where she wished she could have a pet of her own, but never did due to allergies.

Carol also never had the opportunity to attend college, yet she had a deep appreciation for the value of higher education. Combining her love of animals and her wish to help qualified students pursue their dreams in college, she left half of her estate as a bequest to Penn Vet, where it will directly benefit promising future veterinarians as an endowed Opportunity Scholarship.



STAVITSKY

DR. ABRAM STAVITSKY, V'46

Upon graduation from the University of Michigan in 1939, Dr. Abram Stavitsky began graduate work in public health with an emphasis on bacteriology and immunology. He received an MS in Public Health in 1940, followed by a PhD in 1943 from the University of Minnesota. His PhD research focused on the pathogenesis and host resistance in leptospirosis, a disease that affects both humans and animals.

Dr. Stavitsky's interest in comparative pathology and immunology led to the study of veterinary medicine at the University of Pennsylvania, where he was impressed by the depth of the curriculum and the excellent quality of the teaching of basic science, clinical medicine, and surgery. He received his VMD degree in 1946 and pursued a post-doctoral fellowship at the California Institute of Technology.

In 1947, Dr. Stavitsky joined the faculty of Western Reserve University (now Case Western Reserve University) in Cleveland, Ohio, beginning a distinguished research career. His work contributed to a better understanding of the mechanisms of immunological memory and the biochemistry and regulation of the antibody response. He became Emeritus in 1989, when he turned 70, and has continued to produce research, publish, and write reviews.

Through the use of gift annuities and IRA rollover gifts to support scholarship at Penn Vet, Dr. Stavitsky has ensured that the School can continue to provide the highest level of scientific training for future veterinarians. He is particularly passionate about providing financial support for minority students. 🍷

ABOUT PLANNED GIVING

Planned giving offers you an opportunity to create a permanent legacy honoring a special connection to Penn Vet; gain peace of mind and security for you and your family; and support the School's mission of teaching, healing, and discovery.

To learn more about the many ways to make a planned gift, or for more information about the Veterinary Heritage Circle, please contact Jillian Marcussen, Director of Special Projects, at 215-898-4235 or jillian2@vet.upenn.edu.



Scientists from Penn Vet and CHOP Confirm Link Between Missing DNA and Birth Defects

BY KATHERINE UNGER BAILLIE

In 2010, scientists in Italy reported that a woman and her daughter showed a puzzling array of disabilities, including epilepsy and cleft palate. The mother had previously lost a 15-day-old son to respiratory failure, and the research team noted that the mother and daughter were missing a large chunk of DNA on their X chromosome. But the researchers were unable to definitively show that the problems were tied to that genetic deletion.

Now a team from Penn Vet and The Children's Hospital of Philadelphia has confirmed that those patients' ailments resulted from the genetic anomaly. Creating mice that lacked the same region of DNA, the Penn Vet and CHOP researchers showed that these animals suffered the same problems that afflicted the mother, daughter, and son: cleft palate, epilepsy, and respiratory difficulties—a condition called human Xq22.1 deletion syndrome. And, by clarifying the syndrome's genetic basis, the researchers have laid the foundation for identifying the underlying molecular mechanism of these troubles and potentially treating them at their biological root.

"This study has demonstrated that deleting this region in mice causes them to respond like humans with the same deletion," said Dr. P. Jeremy Wang, senior author on the study and professor in Penn Vet's Department of Animal Biology. "Now that we have a mouse model, we



WANG



ZHOU

can dissect and try to genetically pinpoint which genes are responsible.”

Wang co-led the study with his postdoctoral researcher Jian Zhou. Additional coauthors included Penn Vet’s N. Adrian Leu and CHOP’s Ethan Goldberg, Lei Zhou, and Douglas Coulter. The study appears in the journal *Human Molecular Genetics*.

To investigate the effects of missing this portion of DNA, more than one million base pairs long, the Penn Vet team crossed existing mice that had particular deletions in their DNA to create a mouse that lacked the entire stretch that the human patients were missing. They quickly observed that all male mice died at birth due to respiratory failure. Females, who would have one normal X chromosome and one X chromosome with this missing stretch of genetic material, survived but had varying degrees of symptoms, including epilepsy, cleft palate, and other developmental problems.

“We believe this is because of skewed X chromosome inactivation,” Wang said. “In females, one of the X chromosomes’ expression is randomly ‘silenced’ so that males and females have an equal dosage of genetic material from this sex chromosome under normal circumstances. In this case, if more female cells silence the X chromosome that has the deletion, the effects of the syndrome won’t be as severe.”

To narrow down which part of the deleted genetic material was responsible for the observed birth defects, the researchers genetically engineered one type of mice that lacked the first two-thirds of the original genetic deletion and another type that lacked the final third.

Unexpectedly, the mice lacking the two-thirds of the region on the X chromosome, which included 17 genes, did not display any respiratory failure, cleft palate, or epilepsy.

“These mice were fine,” Wang said. “It was very surprising to us that deleting this many genes on the X chromosome did not cause apparent problems for the mice.”

This was not the case for the mice missing the last 350 kilobase pairs of the region of interest. These mice had the same suite of problems as mice missing the entire region: males died after birth and females had cleft palates, higher rates of death soon after birth, developmental delays, and seizures.

After ruling out the genes in this smaller region that have no equivalent in humans, the researchers were left with only four genes. All four belong to the same family of genes and encode proteins that are involved in cellular signaling.

“In females, one of the X chromosomes’ expression is randomly ‘silenced’ so that males and females have an equal dosage of genetic material from this sex chromosome under normal circumstances. In this case, if more female cells silence the X chromosome that has the deletion, the effects of the syndrome won’t be as severe.”

—Dr. P. Jeremy Wang

“These proteins are involved in the neuronal circuitry and activity of neurotransmitters,” Wang said. “That is probably why we see that females lacking one copy of these X-linked genes have epilepsy.”

Wang and colleagues plan to continue studying these four genes to determine which lead to the developmental problems such as cleft palate and epilepsy when they are missing. The information gained from this and future studies could inform prenatal testing, Wang said, giving doctors advance warning to treat possible respiratory or other problems in newborns.

Understanding how the lack of these genes leads to epilepsy could also help guide treatments for the condition.

“Epilepsy and cleft palate affect tens of thousands of children in the U.S. alone each year,” Wang said, “and respiratory failure is a particular problem in premature and low-birth-weight babies. Finding the causative genes for these conditions could have some very clinically important implications.”

The study was supported by funding from the National Institutes of Health.

Penn Vet Welcomes New Overseers

Penn Vet has announced the appointment of Lawrence Otis Graham and Hope Gittis Sheft to its Board of Overseers.

Overseer boards serve as bridges between Penn's schools and centers and the community beyond campus boundaries. The President, Provost, and Board of Trustees rely heavily on these boards to help inform the work of the schools and centers.

"I am confident that Lawrence and Hope will draw on their professional expertise to deliver many benefits to our board and to the entire Penn Vet community," said Penn Vet Dean Joan Hendricks.

LAWRENCE OTIS GRAHAM

Lawrence Otis Graham is an accomplished author who has penned 14 *New York Times* bestselling books. He previously served as a contributing editor at *U.S. News & World Report*. Graham is also a real estate attorney, currently serving as Special Counsel at Cuddy & Feder. He sits on the board of the Horace Mann School, where he is chairman of the Annual Fund. Graham received his BA from Princeton and his JD from Harvard Law School. He lives in Chappaqua and Manhattan with his wife and three children. His daughter dreams of one day becoming a veterinarian.



GRAHAM

HOPE GITTIS SHEFT, C'86

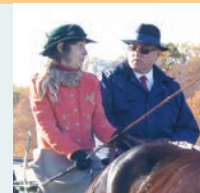
Hope Gittis Sheft, a graduate of the University of Pennsylvania and a current Penn parent, began her professional career at Revlon Inc., where she held the positions of Vice President of Classic Revlon Skincare and Color Cosmetics and Vice President of the Revlon Foundation. At the Foundation, her work included management of the Revlon/UCLA Women's Cancer Research Foundation. Sheft is a member of FARE: Food Allergy Research and Education, and a board member of the Parents Club at Pace Academy. She resides in Atlanta with her husband, two sons, and two Coton de Tulears. 🐾



SHEFT

Penn Vet Thanks Laurie Landeau for Years of Dedicated Service as an Overseer

Dr. Laurie Landeau, V'84, WG'84, has blazed new trails and opened new doors for her veterinary alma mater.



LANDEAU

In 1984, she was the first graduate of a special VMD-MBA program at Penn Vet, combining the required veterinary course load with classes at Wharton to complete the five-year program.

She has since made countless outstanding contributions of her time, expertise, and funds, demonstrated by her longstanding commitment to Penn Vet's Board of Overseers.

Landeau first became an Overseer in 1992, serving continuously until 2005. In 2006 she graciously agreed to chair the Board through the School's exceptionally successful capital campaign, *Building New Levels of Excellence*. During that campaign, the Landeau Challenge—a 1:1 match for post-five years alumni and a 1:2 match for alumni with less than four years post-graduation—brought on board 472 new donors and a total of \$155,322, which Landeau matched.

She was appointed to the University's Board of Trustees in 2005, serving on its Budget & Finance Committee, External Affairs Committee, and Neighborhood Initiatives Committee over the next five years. In addition to serving as a Trustee, Landeau is also a member of the Trustee's Council of Penn Women.

Landeau returned to serve Penn Vet in 2007 as a member of the Board's Development Committee. She rejoined the Board as an Overseer from 2009 through June 2014—bringing her years of dedicated service to the University to nearly 27 in total.

Her extraordinary support of aquatic veterinary medicine at Penn Vet, as well as her leadership of Penn Vet's Aquavet summer teaching program, demonstrates her commitment to one of the world's most critical food sources. As an adjunct faculty member, Landeau shared her expertise in aquaculture and aquatic veterinary medicine with countless students.

Landeau delivered a moving address to Penn Vet's graduating class at the 1994 commencement exercises. She was a very involved member of the "Save the Veterinary School" campaign, and she has championed the cause of women faculty. She is a passionate supporter of our equine work and an accomplished "whip"—someone who drives carriages—which she learned from the School's legendary late Dean, Dr. Mark Allam.

Landeau has been a dedicated and generous member of the Penn Vet community. We sincerely thank her for all she has done and continues to do for the School.



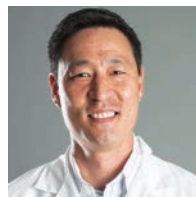
ANGUERA



ATCHISON



FECTEAU



OYAMA

GRANTS

Montserrat C. Anguera, PhD, received a one-year, \$25,737 McCabe Fund Pilot Award to study the molecular details underlying female-bias for the autoimmune disorder lupus.

Michael Atchison, PhD, received a two-year, \$301,502 grant from the Department of Defense CA130155 to study YY1 control of AID-dependent lymphomagenesis. He also received a four-year, \$760,000 grant from the National Institutes of Health (GMS), NIH R01 GM111384, to study the role of YY1 in constitutive and inducible DNA loop formation.

Ashley Boyle, DVM, received a one-year, \$15,000 grant from Boehringer Ingelheim VetMedica on determining the optimal sampling site for strangles using loop mediated isothermal (LAMP) PCR.

Igor Brodsky, PhD, received a two-year, \$247,500 NIH/NIAID (R21 AI109267) grant to study the role of Caspase-8 in *Yersinia* virulence and host defense.

Leah Byrne (William A. Beltran, DVM, PhD Lab), received a three-year, \$165,354 NIH/NEI F32 grant to study optimizing gene therapies in large animal models of retinal degeneration.

Zhengxia Dou, PhD, received a one-year, \$49,250 grant from the U.S. Department of Agriculture in support of *The Last Food Mile: Food Loss and Food Waste in the U.S. Food Supply Chain* conference.

Marie-Eve Fecteau, DVM, received a six-month, \$17,000 grant from the Commonwealth of Pennsylvania to study the comparison of Johnes's disease prevalence on organic and conventional dairy farms in Pennsylvania.

Ciara Gimblet (Laboratory of Phillip Scott, PhD) received a \$128,793 NIH/NIAID F31 grant for understanding the role of IL-22 in cutaneous leishmaniasis, from September 2014 through July 2017.

Ronald Harty, PhD, received a two-year, \$247,500 NIH R21 grant to study innate immune regulation of intracellular pathways involved in Filovirus budding. With **Bruce D. Freedman, VMD, PhD** as Co-PI, he also received a three-year, \$900,000 NIH/NIAID R33-AI102104 grant to study host-oriented therapeutics targeting Filovirus budding.

Mark Haskins, VMD, PhD, received a four-year, \$1,610,482 NIH 2-R01-DK-054481 grant to study gene therapy for Mucopolysaccharidosis.

Anna Kashina, PhD, received a four-year, \$1,216,000 NIH/NIGMS R01-GM108744 grant to study regulation of actin during cell migration. She also received a one-year, \$40,000 grant from the URF University of Pennsylvania to study protein arginylation in the regulating of skeletal muscle strength.

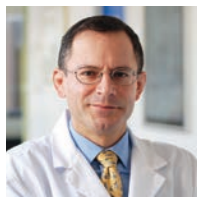
Nicola Mason, PhD, BVetMed, received a one-year, \$50,000 University of Pennsylvania Sarcoma Pilot Grant Award to study Canine Sarcoma: Her2 and radiation.

Michael May, PhD, received a one-year, \$20,000 grant from Penn's ITMAT for the Transdisciplinary Program in Translational Medicine and Therapeutics targeting Vascular Endothelial Cell-Intrinsic Non-Canonical NFkappa B.

Cynthia Otto, DVM, PhD, received a one-year, \$140,754 grant from the Department of the Army for *Stage 2: Maintaining Hydration of Dogs in Working Environments*. She also received a one-year, \$31,334 grant from Nestle Purina for the Canine Hydration and Exercise Challenge Field Study.

Mark Oyama, DVM, received a one-year, \$43,563 grant from AKC-CHF for a genome-wide association study of myxomatous mitral valve disease in Norfolk terriers. He also received a one-year, \$37,291 grant from CEVA Labs for the Type IV Cardiorenal Syndrome Study, as well as a \$27,729 grant from Tufts University to study *Early detection of cardiomyopathy in pet cats: A novel approach to practice-based population screening* from April 2014 through May 2015.

Ellen Puré, PhD, received a \$394,501 NIH/NCI (R01-CA-141144-05) grant to study fibroblast activation protein in the tumor microenvironment in lung cancer. The grant spans from July 2013 through January 2015. She also received a 10-month, \$165,300 grant from the Wistar Institute (flow through NIH/NCI) to study *Mammalian regeneration, high fat diets, and breast cancer: A common link?*



BELTRAN



RANKIN



SCOTT



SMITH

GRANTS

In addition, **Dr. Puré** received a one-year, \$380,000 grant from the Research Facilities Development Fund for the development of non-invasive live research animal whole body imaging to support ongoing sponsored research. Along with **Richard Assoian, PhD**, she received a five-year, \$1,289,520 NIH R01-AG-047373-01 grant to study aging, gender, and arterial stiffness in atherosclerosis.

Shelley Rankin, PhD, and **Charles Bradley, VMD**, received a \$12,312 grant from the AKC Canine Health Foundation to study *The cutaneous resistome of dogs: the effect of antimicrobial selective pressure on the canine microbiome*.

Phillip Scott, PhD, received a two-year, \$275,000 NIH/NIAID R21 grant to study resident memory T cells in leishmaniasis.

Makoto Senoo, PhD, received a five-year, \$1,100,000 NIH/NIAMS 1R01-AR-066755-01 grant to study intrinsic and extrinsic regulation of epidermal stem cells.

Billy Smith, DVM, received a \$163,633 grant from Merck Animal Health to study effectiveness and safety of Fertagyl injection for use with cloprostenol sodium, to synchronize estrous cycles to allow fixed-time artificial insemination in lactating dairy cows compared to a saline control. The grant spanned from November 2013 through April 2014.

Tiffany Weinkopff (Laboratory of Phillip Scott, PhD) received a three-year, \$171,018 NIH/NIAID F32 AI 114080 grant to study the role of myeloid lineage cells in leishmaniasis.

FACULTY/STAFF NEWS

Helen Aceto, PhD, VMD, was promoted to Associate Professor of Epidemiology (CE) in the Department of Clinical Studies/New Bolton Center.

William A. Beltran, DVM, PhD, has been promoted to Associate Professor of Ophthalmology, Tenure Track.

The AKC Canine Health Foundation (CHF) has announced **Abigail Bertalan, VMD**, as one of the 2014 class of Fellows for the Clinician-Scientist Fellowship Program. Dr. Bertalan, a resident with the Internal Medicine Clinical Team, will receive support from CHF for training and research efforts.

Ann-Kathrin Brons, DVM, a Research Fellow in Genetics with **Urs Giger, Dr med vet**, received the award for best doctoral thesis from the University of Zurich at the annual Dies academicus.

Executive Director of Ryan Hospital, **Bo Connell**, was invited to speak at the spring meeting of the American Association of Veterinary Clinicians on the topic of *Maintaining a Vibrant and Competitive Veterinary Teaching Hospital*.

Roberta Di Terlizzi, DVM, received the 2014 Excellence in Teaching Award, as voted by recent alumni at the Penn Annual Conference. Dr. Di Terlizzi is an Assistant Professor of Veterinary Clinical Pathology in the Department of Pathobiology.

Bernd Driessen, DVM, is serving as a Visiting Professor of Anesthesiology at Turin University in Italy from November 5, 2013, through October 30, 2014. In collaboration with four ACVAA and ECVAA colleagues from Austria, Italy, Spain, and Switzerland, he has organized an 80-hour certificate course for European attendees on *Principles of Small Animal Anesthesia and Perioperative Analgesia*.

Hannah Galantino-Homer, VMD, PhD, was accepted to present at the American Association of Equine Practitioners Annual Convention this December in Salt Lake City. Her topic is *Characterization of Equine Hoof Lamellar Tissue Microanatomy with Fluorescent Markers*. Her talk at the International Equine Conference on Laminitis and Diseases of the Foot was covered by *The Horse*.



GIGER



MCDONNELL



OTTO



REITER

FACULTY/STAFF NEWS

Urs Giger, Dr med vet, was invited for a weeklong guest professorship at the University of Brno in the Czech Republic. He was also invited to speak at the annual ACVIM Forum in Nashville.

In February, **Mark Haskins, VMD, PhD**, delivered the Joy Goodwin Lecture on *Large Animal Models of Lysosomal Storage Diseases: Pathogenesis and Therapy* at Auburn University School of Veterinary Medicine.

At the Association for Research in Vision and Ophthalmology Conference in May, it was announced that **András Komáromy, Dr med vet, PhD**, will be one of the recipients of the 2015 Pfizer Ophthalmics Carl Camras Translational Research Award for work that was primarily completed at Penn. Dr. Komáromy holds an adjunct faculty appointment.

Meryl Littman, VMD, had several recent speaking engagements including ACVIM National Forum in Nashville, Renal Week in New York City, and the Penn Annual Conference.

James Lok, PhD, received the Zoetis Outstanding Veterinary Teacher Award.

Kristin Loria, DVM, a clinical pathology resident and clinical instructor, has been selected as this year's recipient of the Charles Louis Davis, DVM Foundation Student Scholarship Award. This award is given to a resident who has displayed superior scholarship, leadership, research ability, and diagnostic skills. The award will be given November 10 at the ACVP meeting in Atlanta, Georgia.

Sue McDonnell, PhD, was appointed to the National Wild Horse and Burro Advisory Board by the Secretaries of Interior and Agriculture. She will serve a three-year term.

In addition, **Dr. McDonnell** participated in a workshop held at the White House Conference Center to develop a strategy for offering a global prize challenge to solve the complex chronic problems with managing wild horses and burros on multi-use public lands.

Adrian Morrison, DVM, PhD, won the 2014 Orr E. Reynolds Award for the best historical article submitted by an American Physiological Society member. His article was entitled *Coming to Grips with a "New" State of Consciousness: The Study of Rapid Eye-Movement Sleep in the 1960s*. In addition, Penn's Center for Sleep and Circadian Neurobiology has created the Adrian R. Morrison Keynote Address to be delivered at the Center's annual retreat.

Lisa Murphy, VMD, was installed as President-Elect during the 2014 annual meeting of the International Association for Aquatic Animal Medicine (IAAAM) in Gold Coast, Australia. She will also serve as the Scientific Program Chair for their April 2015 meeting in Chicago.

Cynthia Otto, DVM, PhD, was inducted into the Notre Dame Academy Women of Vision Hall of Fame in Toledo, Ohio, and also received her alma mater's Professional Achievement Award. In March, the Penn Vet Working Dog Center was awarded a cooperative research and development agreement with the Department of Homeland Security for the research and breeding of purpose-bred explosive detection canines, building upon the data gathered by the TSA breeding program.

Alexander Reiter, Dipl. Tzt., gave lectures and wet laboratories on dentistry and oral surgery at the Penn Annual Conference in March. He also held a mock examination for residents enrolled in dentistry and oral surgery training programs in Halmstad, Sweden in April.

In addition, **Dr. Reiter** was a keynote speaker during the 23rd European Congress of Veterinary Dentistry in Marseille, France, in May. During that meeting, he started a two-year term as President of the European Veterinary Dental College (EVDC).

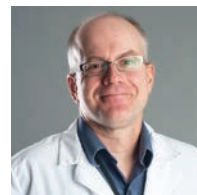
Christopher Rizzo, LVT at New Bolton Center, passed a specialty exam to become a Veterinary Technician Specialist in Equine Veterinary Nursing. He was inducted into the Academy of Equine Veterinary Nursing Technicians.



SCHIFFERLI



SWEENEY



VITE



VOLK

FACULTY/STAFF NEWS

Dieter Schifferli, DVM, PhD, along with **Min Yue, PhD, Postdoctoral Fellow**, published the paper *Allelic variation in Salmonella: An underappreciated driver of adaptation and virulence* in the journal *Frontiers of Microbiology* 4, 419.

Deborah Silverstein, DVM, spoke at the European Veterinary Emergency and Critical Care Symposium in Prague in June. Her study *The Effects of Fluid Administration on Microcirculatory Perfusion during General Anesthesia in Dogs* was accepted in the *American Journal of Veterinary Research*.

In addition, **Dr. Silverstein** spoke at the *Discover the Future 2014* event at Pennbrook Middle School in Upper Gwynedd, Pennsylvania. **Penn Vet Dean Joan C. Hendricks, VMD, PhD**, was the keynote speaker.

Corinne Sweeney, DVM, was elected in April to the Board of Directors of the Association of Racing Commissioners International.

Charles Vite, DVM, PhD, delivered the lecture *Canine globoid cell leukodystrophy: Benefits of the model and what we have learned so far* at the 4th Annual Krabbe Translational Research Network in Ft. Lauderdale. He also spoke at the ACVIM in Nashville, where he discussed evidence of feelings of pleasure in animals.

Susan Volk, VMD, PhD, has been reappointed Assistant Professor of Surgery, Tenure Track.

Kristina Whitesell, DVM, a Senior Resident in Reproduction and Behavior, presented a clinical “How To” talk at AAEP. She also presented her stallion research with **Drs. Regina Turner** and **Sue McDonnell** at the International Symposium on Equine Reproduction in New Zealand.



Life's greatest and most valuable lessons are learned from past experiences. Events that transform thought, shape opinion and provide insight. Instruction provided by history is truly the most reliable and most meaningful instruction of all.

For more than 60 years, New Bolton Center has been an international leader in equine research, diagnosis and treatment. This is where the finest equine care in the world is practiced. With a long and rich history of excellence.



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”

“Shelter medicine involves integrating different fields together. We’re not just looking at the medical end of a problem; we’re looking at the social and cultural sides. How are we best able to look at and solve issues from a broader One Health perspective? That’s what we’re trying to do.”

—Dr. Brittany Watson

Dr. Brittany Watson, V’10, Joins Penn Vet as Director of Shelter Animal Medicine

Penn Vet is proud to announce the appointment of Dr. Brittany Watson as Director of Shelter Animal Medicine. She is devoted to the One Health mission of integrating various fields—medical, scientific, social, and environmental—for the benefit of animals and people.

In this role, Dr. Watson will develop a strategic vision for the future of the Penn Vet Shelter Animal Medicine Program, which provides support to the shelter community in the Philadelphia region and valuable training to students. She will maintain and enhance existing shelter relationships, forge new partnerships, teach veterinary students, and oversee the day-to-day management of the program. The program’s directorship is generously supported by the Rosenthal Fund for Animals and Jerry Rosenthal and his wife Cionna Buckley.

Prior to joining Penn Vet, Watson served as Veterinary Director of Continuing Education Initiatives for the Charleston Animal Society (CAS) in South Carolina. During her tenure, she helped CAS achieve record live release, adoptions, and education programs in the state. She also regularly performed surgical procedures and documented cruelty cases.

In addition to being a Humane Alliance-trained shelter veterinarian, Watson has a special interest in teaching, humane education, the human-animal bond, and management/protocol development. She created the Veterinary Science Initiative, which uses veterinary medicine to connect high school students to science.

Watson has also served as a Native American Veterinary Services instructor, traveling to Native American reservations with students to perform basic animal care and to offer spay/neuter clinics.

Dr. Watson received her VMD from the University of Pennsylvania and a PhD in educational administration from the University of South Carolina School of Educational Leadership. ♥

ABOUT THE PENN VET SHELTER ANIMAL MEDICINE PROGRAM

Penn Vet has long been known as a provider of compassionate care and clinical expertise. In that tradition, the School established the Penn Vet Shelter Animal Medicine program in 2006 to provide clinical support and consultative services to regional shelters and the Greater Philadelphia community. The program has a meaningful impact on how many homeless animals are given quality care and placed into permanent homes. In addition, the Shelter Animal Medicine program provides valuable, hands-on education for Penn Vet students.

Penn Vet’s shelter partner facilities are the PSPCA, PAWS, Delaware County SPCA, Morris Animal Refuge, and the ACCT (Animal Care and Control Team) of Philadelphia. Through a working relationship with these shelters, Penn Vet successfully integrates clinical teaching and service to the animal welfare community, while strategically addressing shelter animal over-population issues.

Dr. Kenneth C. Bovée, DVM

Professor Emeritus of Medicine,
University of Pennsylvania School of Veterinary Medicine



Kenneth C. Bovée, DVM, passed away on May 23, 2014. Dr. Bovée was born September 1, 1936, and grew up in Chicago, Illinois, and Plymouth, Indiana. He earned a BSc and a veterinary degree from Ohio State University, followed by an internship and staff position in medicine at the Animal Medical Center in New York City.

He joined the Penn Vet faculty as an assistant professor in 1964 and, in 1969, completed a postdoctoral fellowship and Master of Medical Science degree in Penn's School of Medicine.

Dr. Bovée served the veterinary school and clinical department with distinction in many roles, including Chief of the Section of Medicine for a total of 16 years, and as Chairman of the Department of Clinical Studies for six years. Dr. Bovée was Chairman of the Department during the construction and move into the new small animal hospital (Ryan Hospital) in 1981. He also served the University as a member of the Faculty Senate and the Academic Planning and Finance Committee. For 10 years, he chaired the University's Graduate Group in Comparative Medical Sciences.

In 1981, he was the first recipient of the Corinne R. and Henry Bower Chair and Professorship in Medicine. He was very supportive of the integration of social work into veterinary education and was appointed to a secondary faculty position at the Penn School of Social Work in 1985.

A Charter Diplomate of the American College of Veterinary Internal Medicine since 1972, Dr. Bovée served the Internal Medicine College in many ways, including chairing their examination committee for six years and serving as President from 1979 to 1980. He was a prolific writer of articles describing original studies, as well as chapters in textbooks. He also wrote a book, *Canine Nephrology*, published in 1984. Internationally recognized for his expertise in small animal urology, Dr. Bovée was awarded the Ralston Purina Small Animal Research Award in 1980.

He was a member of numerous veterinary and medical societies such as the American Veterinary Medical Association, American Heart Association, American Society of Hypertension, the American and International Society of Nephrology, and the College of Physicians of Philadelphia.

Dr. Bovée retired as Emeritus Professor in 1998 and spent the remainder of his life enjoying family and friends. He was preceded in death by his son, Brent, and is survived by his wife, Terry, and two sons, Brad (V'92) and Ben, and their families.

Contributions may be made to the National Multiple Sclerosis Society, 30 South 17th Street, #800, Philadelphia, PA 19103.

Mary Elinor Butt Jenny, V'49

Mary Elinor Butt Jenny was born in Philadelphia on November 10, 1924, and died peacefully on June 21, 2014, at the age of 89. She was a student of the late Dr. Jacques Jenny, who she married following her graduation from the University of Pennsylvania School of Veterinary Medicine in 1949. She was one of the first women to graduate as a veterinarian in the United States.

Elinor was devoted to animals and a knowledgeable horsewoman, whose home-bred Heyday was ridden to an individual gold medal at the 1995 Pan American Games by legendary three-day eventer Bruce Davidson.



Her dedication to her profession was deep and sincere. Elinor served her veterinary alma mater as an Assistant Instructor in Surgery in the early 1970s and was a generous supporter of New Bolton Center's Equine Orthopedic Research Fund. She was also a committed and creative member of the School's Second Century Campaign Equine Committee.

She endowed the Jacques Jenny Professorship of Veterinary Orthopedic Surgery for Large Animals at New Bolton Center in 1973 in honor and memory of her husband, a pioneer of equine orthopedic surgery at Penn Vet, who died in 1971.

She is survived by her five children and 11 grandchildren and their families. Her granddaughter Elinor Grassie, V'12, followed in her footsteps as a veterinarian.

A Celebration of Life will take place at 6 p.m. on Friday, October 3 at London Grove Meeting, 500 W. Street Road, Kennett Square, PA, 19348.

CLASS NOTES

Alumni Travel Hosted by Penn Vet Faculty

Tom Van Winkle, V'75, and faculty member **Peter Dodson** will be the hosts for two Penn Alumni Travel tours in 2015. Dr. Van Winkle will host the trip to Panama and Costa Rica, and Dr. Dodson will host the trip to Tanzania. For information, visit www.alumni.upenn.edu/travel2015.

1940s

Robert Leighton, V'41, is an emeritus professor at the UC Davis School of Veterinary Medicine, has written numerous articles and book chapters, and is the coauthor of *Small Animal Orthopedics and Radiology of Small Animal Fracture Management*. He served in the Veterinary Corps during World War II, was the first chief of surgery at the Animal Medical Center in New York, and has lectured in 17 countries.

1950s

Jeff Hathaway, V'53, works at a house-call practice four days a week in rural Pennsylvania. He joined Rotary in 1955 in Brandywine, DE, followed by Hawley, PA, and he served as the charter president in Hamlin, PA in 2012.

William Crawford, V'59, retired in January 2008 and resides in Mercer, PA.

1960s

Richard Rodgers, V'62, retired and sold his practice in 2001. He worked full time managing a practice in Virginia until May 2011 and now works 1-2 days a week for the Animal Resource Foundation, doing spays and neuters.

Donald R. Lundy, Jr., V'63, retired from the Twin Hills Veterinary Hospital after a 50-year career in veterinary medicine serving Lycoming County, PA.

Bovine medicine was a large part of his practice early on. As the era of the rural dairy farm slowly came to a close, the small animal practice expanded. He has three children and six grandchildren.

Seth Koch, V'65, GV'70, is semi-retired from ophthalmology. He still sees eye cases on request at Hickory Veterinary Hospital and the Cat Doctor practices in the Philadelphia area and goes to Latham, NY, once a month to Shaker Veterinary Hospital. He resides in Philadelphia, having formerly lived and practiced in Washington, DC, for over 40 years at one of the first specialty practices in the nation (started in 1970). He is recognized for his work in Parotid duct transposition and is called upon to perform the surgery by ophthalmologists.

Jack Bregman, V'66, and **Eric Bregman, V'95**, have started VetOfficeSuite. Cloud-based VetOfficeSuite is a first-of-kind application expressly created to manage veterinary practices. The suite allows practices to create invoices, manage clients and patients, create office documents, schedule appointments, and manage inventory. For more information, visit www.vetofficesuite.com.

Roger Murphy, V'66, moved with wife Naomi to the northwest after spending some 25 years practicing at the south gate of Yosemite National Park. They now reside in Ferndale, WA, just south of the Canadian border. He says that practice was rewarding and retirement is wonderful.

Don Jacobs, V'69, has retired and moved from San Diego to South Carolina to be closer to family.



PENN ANNUAL CONFERENCE 2015

Come be a part of Penn Vet's annual continuing education program and one of the largest gatherings of veterinary colleagues, alumni, friends, and clients in the Philadelphia region.

LECTURES

Wednesday, March 11 and Thursday, March 12, 2015

Sheraton Philadelphia Downtown Hotel
Philadelphia, PA

WET LABS

Friday, March 13, 2015

Penn Vet's Ryan Hospital
Philadelphia, PA

REGISTRATION

www.vet.upenn.edu/PAC2015

Advanced registration will be available in October. Please visit the Conference website for more details.

115th

1970S

Steve Melman, V'73, sold DermaPet to Dechra in 2010. After buying the old MedRx video-otoscopy company, he decided retirement from pharma was overrated. In 2014, he started DermaZoo and now has dental, derm, and otic lines and a strong pipeline of future intellectual property products.

Steven Radbill, V'75, is retiring from the Pennsylvania State Board of Veterinary Medicine after an eight-year term as Secretary.

Steve Levy, V'77, is currently President of Veterinary Clinical and Consulting Services, LLC. He partners with veterinary industry leaders and associations as a peer educator, an industry consultant, and a clinical veterinarian. He is considered a premier Key Opinion Leader on Canine Lyme Borreliosis. He has presented seminars throughout the United States and internationally and is the recipient of the AVMA Practitioner Research Award and the AAHA Region I Outstanding Veterinarian Award.

Nancy Bromberg, V'78, currently co-chair of the Public Relations Committee for the American College of Veterinary Ophthalmologists, was elected to the board of directors of the Orthopedic Foundation for Animals (OFA).

In January 2014, **Frederick D. Piper, V'78**, officially retired and sold Lakemont Veterinary Clinic, Inc. which he established in 1979. He noted, "Graduating from the University of Pennsylvania School of Veterinary Medicine was one of the proudest moments of my life. My sincere gratitude goes out to the staff and faculty for providing me with the opportunity and education to fulfill my dream."

After 23 years in New Jersey, **Linda Rhodes, V'78**, has moved to a lovely town in New Hampshire where she is enjoying her 17 acres and the rural life. She noted, "I still work way too much; I guess I am still having fun at it. The startup animal health company that I started in 2011 has grown like a weed, and I have now taken the role of Chief Scientific Officer. I am proud to say that we have some really innovative new drugs in development for dogs and cats, and we were able to complete an IPO a year ago (PETX: NASDAQ). We presented our first data recently at ACVIM where I was able to see a lot of VMDs and old friends."

The Philadelphia Animal Welfare Society (PAWS) named **Robert J. Orsher, V'79**, to their board. Orsher is owner and chief of surgery at Veterinary Specialty and Emergency Center in Levittown.

1980s

Russell Cattley, V'80, was appointed Head of the Department of Pathobiology at the Auburn University College of Veterinary Medicine. He joined the Auburn faculty as the Tyler and Frances Young Professor of Pathology in 2011, following retirement from Amgen Inc. in Thousand Oaks, CA, where he was Executive Director of Pathology.

Nadine Hackman, V'80, retired from a longtime position as Program Director of Harcum College's Vet Tech Program in June 2012. She moved to New Hampshire where **Steve Barsanti, V'80**, is her vet!

Jill Bailey, V'83, completed her transition from equine practice to canine rehabilitation by moving across the country in October 2013 to just north of Atlanta, GA, where she took a job in a rehab-only, three-doctor facility.

Joel Baines, V'83, became dean of the LSU School of Veterinary Medicine in Baton Rouge, LA, on September 1, 2014.

Margaret Bliss, V'86, has a new job with Midway Animal Clinic located in Midway, AZ.

Robert Moffatt, V'87, was elected Deputy Mayor of Cape May Point, NJ.

Alexander Werner, V'87, has been appointed to the editorial board of NAVC's *Clinician's Brief* journal. Dr. Werner is also editor of the dermatology section of the upcoming sixth edition of *The 5-Minute Veterinary Consults* textbook and co-author of the dermatology companion to *The 5-Minute Veterinary Consults*.

Ellen Behrend, V'88, was elected to the ACVIM Board of Regents. It is a five-year term progressing from Vice President through President and Chair. She began her service as Vice President in June at the ACVIM Forum in Nashville.

Jeske Noordergraaf, V'88, sold her equine practice after 17 years and now works for a nonprofit that raises swine for diabetes research.

1990s

Angela Frimberger, V'90, became a Climate Reality Leader in June 2014, following training in Melbourne, Australia, by Al Gore and his colleagues at the Climate Reality Project and the Australian Conservation Foundation.

Cary Scibetta, V'90, and **Eric Twitchell, V'89**, have opened a new, state-of-the-art hospital in McKean, PA. The building was designed by John Copich of Copich and Associates, Youngstown, OH, an architectural firm that has specialized in veterinary facilities for over 50 years.

The doors of the new hospital opened on December 2, 2013.

Scott Perkins, V'92, was promoted in January 2014 to Senior Director, Division of Laboratory Animal Medicine, at Tufts University and had his 13th anniversary at Tufts in May 2014.

Roy Yanong, V'92, was promoted from Associate Professor to full Professor at the University of Florida. He now serves as full Professor and Extension Veterinarian with the Tropical Aquaculture Laboratory, Program in Fisheries and Aquatic Sciences in the School of Forest Resources and Conservation.

Katherine Trow, V'94, and **Abby Schutzman, V'10**, opened a co-op model veterinary practice in Wallingford, PA. They are a full-service hospital with a membership model that allows them to keep costs down for a continuity of affordable care. The practice opened in February 2014 and they love their practice and clients. For info, visit www.unityanimalhospital.com.

Ellen Dziedzicki, V'95, took the leap of faith in February 2013 and opened her own small animal clinic, Faithful Friends Veterinary Care located in Huntingdon, PA. One year later, she was able to open the doors on a newly remodeled building.

Jill Kulig, V'95, has recently accepted an Associate position at Macungie Animal Hospital in Pennsylvania. Macungie is the proud recipient of the 2013 AAHA Hospital of the Year.

Amanda Fine, V'97, is living in Hanoi, Vietnam, with her husband Andrew Parkinson and five-year-old son, Orlo. She moved last year from her position in Mongolia with the Wildlife Conservation Society (WCS) to her new Asia regional position with WCS as Associate Director of the Wildlife Health & Health Policy Program. Her responsibilities include coordinating the USAID-funded PREDICT project in Vietnam that investigates and builds capacity to address diseases of pandemic potential at the wildlife/human interface.

Zeeve Gans, V'97, is President of the Israel Companion Animal Veterinary Association (ICAVA).

Robert Noto, V'97, has owned Memorial Veterinary Hospital of Scranton, PA, since 2008. He recently opened two new small animal clinics: Memorial Veterinary Hospital of Throop, PA, and Memorial Veterinary Hospital of Old Forge, PA.

Christine Smart, V'97, had a baby girl November 2, 2013. She joins her big brother Avery (8 years old) in Sandpoint, ID. Her small animal practice, Pend Oreille Veterinary Service, celebrated its 50th anniversary this June. She has two partners, and the founding veterinarian still works part time. She notes that they are all DVMs, but good guys regardless.

2000s

Jack Hershey, V'00, was married to Carey Hemmelgarn on June 22, 2014, at the New York Botanical Garden in the Bronx, NY.

Tripp Stewart, V'00, is owner of Greenbrier Emergency Animal Hospital in Charlottesville, VA; he also works after-hours and weekends to help the community. He recently sold his second business, The Alberene Soapstone Company, so he is looking for a new hobby! He has two daughters, ages 6 and 8, and keeps in touch with a number classmates and Penn mates. He lives across the street from **Elvira Tate Hoskins, V'00**.

Natalie Albright (Austin), V'01, welcomed baby Quinn on March 3, 2013, and bought a house in Carmel Valley, CA. Quinn joins his older brother Griffin (age 3) in their new home.

Theresa Alenghat, V'03 GR'07, has been awarded a Burroughs Wellcome Fund (BWF) Career Award for Medical Scientists, a competitive program that provides funding for five years to bridge advanced training and early years of faculty service. She is the first veterinarian to receive this award from BWF. Dr. Alenghat has accepted a position of assistant professor in the Division of Immunobiology at Cincinnati Children's Hospital Medical Center, and she also had a recent first authorship in *Nature*.

Christine Starer-Smith, V'03, has an addition to her family. Daughter Peyton Ashley was born October 16, 2013. Peyton joins big sister Carson who loves playing veterinarian and "making cats and dogs feel better like Mommy."

Jennifer Sim, V'04, is moving with her family (Don, Marion, and Brandon) from Connecticut to Asheville, NC, to join the Animal Hospital of North Asheville where she will be practicing dentistry and oral surgery. She and husband Don just celebrated their 10th wedding anniversary.

Sarah Sprague, V'04, recently moved to Lake Forest, IL, and has taken on a new career path in equine acupuncture.

Laura (McNelis) Johnson, V'05, married Jason Johnson on June 8, 2014, in Gwynedd, PA. The bridal party consisted of V'05 alumni **Janine Haney**, **Michelle Rosero Parker**, and **Audra Olsen**.

Erica Tramuta-Drobnis, V'05, is an Emergency Veterinarian with Veterinary Emergency and Referral Center in Clarks Summit, PA.

Jennifer Miller (Smetana), V'06, and **Michael Miller, V'06**, had their first baby in July. They moved to Salisbury, NC, a little over a year ago and love it.

Joan Norton, V'06, DACVIM, has accepted a position at the University of Queensland School of Veterinary Science in Australia. She will be joining former New Bolton Center resident-mates **Drs. Steve Zedler**, **Andrew Van Eps**, and **Claire Underwood** at the UQ Equine Hospital. She says to please come visit, if you ever find yourself in that part of the world!

Alanna Schwartz, V'06, and husband Jeff welcomed their third child, Daniel, into the world last September. Big sister Hannah and big brother Joshua are enjoying their new baby brother. They are living on the Upper West Side in Manhattan.

2010s

Jessica Manning (Kishel), V'11, married Kenneth Manning on September 10, 2011, and welcomed their first child, Wesley, on December 23, 2012.

Katie Todd, V'12, was married in July 2013 to Jordan Berger, moved to Louisville, KY, and had a baby boy, Calvin, in May 2014.

Ersin Ulke, V'12, and his wife Audry relocated to Asheville, NC.

Molly Harrington Dominguez, V'13, welcomed daughter Carmen Isabel on February 28, 2014.

IN REMEMBRANCE

Dr. Marguerite "Marge" Gulick, V'44, age 92, passed away October 30, 2013. Dr. Gulick met her husband, the late William Gulick, while in veterinary school. She was "One of the First Fifty Women of Veterinary Medicine." Following graduation, the couple settled in Great Barrington, MA, where they opened their veterinary practice, Bilmar, and raised their family. Up until the time of her death, Marge was an active member of the community, involved with the Boy Scouts, Girl Scouts, as well as St. James Church.

Dr. Cameron S. Wilson, V'48, of Richboro passed away suddenly on January 17, 2014, at his residence. Following graduation, he started his practice in Richboro, which he operated for 51 years prior to his semi-retirement in 1999. He eventually retired completely in 2001. Throughout the years he lovingly cared for both large and small animals. Dr. Wilson was appointed to the State Board of Veterinarian Medical Examiners by Pennsylvania Governor Richard Thornburgh. He was a member and past president of the Bucks Montgomery Veterinarian Association. In addition, he was the Pennsylvania State Racing Commission veterinarian for Philadelphia Park and Keystone Racing Association for

more than 20 years. He also was a valuable influence to help develop the Harness Racing Animal Care and Thoroughbred Racing Care.

Dr. Philip C. Garrett II, V'51, died peacefully on June 6, 2013, in Naples, FL. Focusing primarily on herd health and reproductive medicine in dairy cattle, Dr. Garrett helped to pioneer and refine a number of important veterinary practices and techniques that helped dairy farmers produce healthier and more productive cattle. He began his veterinary career in the Hopewell, NJ, practice of Dr. Amos Stults, but soon brought his skills to the U.S. Army Veterinary Corps. He served as a First Lieutenant during the Korean War, overseeing the inspection of food destined for American troops, a role that permitted him to utilize his professional experience in the service of his country while staying true to the conscientious moral tenets of his Quaker faith. Having returned to Dr. Stults' practice after the war, Dr. Garrett subsequently established his own veterinary practice in 1972, specializing in herd health and reproductive medicine in dairy cattle. Dr. Garrett was an influential member of the Central New Jersey Veterinary Medical Association, where he served as Secretary-Treasurer, Vice-President, and ultimately President.

Dr. Klaus Hubben, V'53, of Landenberg, PA, passed away on May 3, 2014, at age 84. He earned a master's degree in veterinary pathology and spent two years in the Air Force veterinary corps. Klaus taught pathology at New Bolton Center for 10 years before spending the next 22 years in pharmaceutical research at I.C.I. Americas in Wilmington, DE.

Dr. Carl Reynolds, V'60, of Tunkhannock, PA, died June 29, 2014, at home surrounded by his family. He was 81. After graduation from veterinary school, Dr. Reynolds established his practice in Chinchilla, PA, which served both large and small animals. In 1970, he opened Abington Animal Hospital. At that time it was the only Northeastern Pennsylvania facility accepted as a member of the American Animal Hospital Association. Abington Animal Hospital hosted JTI and fostered three years of veterinary technology students to enjoy hands-on experience in a thriving practice of professional integrity. This cooperation offered not only great personal fulfillment as creator of this curriculum, but also full state accreditation for its graduates. Dr. Reynolds found his pending retirement to be unappealing. He continued his educational work as a substitute teacher at Abington Heights High School for nearly three years.

Dr. Jack Davis Levengood, V'65, passed away on May 1, 2014, surrounded by his loving family after a short but courageous battle with mesothelioma. He served his country for four years in the U.S. Navy during

the Korean War in the Coding Service on the USS Northampton in the North Atlantic. He graduated from Penn State University in Secondary Education and from the University of Pennsylvania in 1965. He practiced at Brandywine Animal Hospital until he opened the Towerville Veterinary Clinic in Coatesville, PA, in 1976, where he practiced until the time of his passing. Dr. Levengood was a member of the Hemlock Lodge, the Pennsylvania Veterinary Medical Association, the Penn State Alumni Association, and the American Veterinary Medical Association.

Dr. Peter Ihrke, V'72, passed away in February 2014. Dr. Ihrke was a past president of AAVD and the 2013 recipient of AAVD's Frank Král Award, which recognized his outstanding contributions to veterinary and comparative dermatology. He touched the lives of so many people and will be deeply missed.

Dr. Courtney Alexandra Jones, V'98, of Baltimore, MD, passed away May 10, 2014. Dr. Jones spent eight years practicing in Columbia, MD. She then worked at the Eastern Veterinary Blood Bank, traveling around Maryland and Virginia conducting blood drives for dogs. She completed several courses in abdominal ultrasound and was also interested in dermatology. Dr. Jones completed an intensive course on endoscopic and laparoscopic surgery at the University of Georgia. In 2009, Dr. Jones joined the Hunt Valley Animal Hospital in Hunt Valley, MD, where she was employed at the time of her death. She was a member of the American Veterinary Medical Association and the Maryland Veterinary Medical Association.

SEND US YOUR NEWS!

Calling all VMDs and former Penn Vet interns and residents! Have you received a promotion, been married, had a baby, received an award, had a research finding, or opened a new business? Please share your good news with us.

Email the Alumni Office at kmcmul@vet.upenn.edu or write to us at Alumni Relations, Penn Veterinary Alumni Office, 3800 Spruce Street, Suite 172E, Philadelphia, PA 19104.

AWARDING ALUMNI ACHIEVEMENTS & SERVICE

Penn Vet is thrilled to have the opportunity each year to applaud outstanding alumni members of our community—and this year was no exception. The award program, held during the Penn Annual Conference in March, was filled with talented, dedicated, and caring veterinary professionals and students.



ROBINSON



KRUM



BASSERT

2014 ALUMNI AWARD OF MERIT

The Alumni Award of Merit is presented annually to a select group of alumni who have demonstrated exceptional leadership and service to the School of Veterinary Medicine, as well as community involvement and excellence in the veterinary profession.

Dr. Theodore Robinson, V'74

Since graduating in 1974, Dr. Theodore Robinson has spearheaded numerous causes and bolstered the image of Penn Vet and the veterinary profession.

In 2000, Dr. Robinson was instrumental in forming the Native American Veterinary Services—an organization dedicated to bringing quality veterinary care to Native American reservations in the Southwest. Dr. Robinson takes groups of Penn Vet students on these trips, affording them the opportunity to participate in all aspects of both small and large animal surgery and medicine.

He has served on the Board of Trustees of the Pennsylvania Veterinary Foundation and the Pennsylvania Veterinary Medical Association for the past decade. In 1992, he formed Unique Seminar Destinations for the Veterinary Profession, which combines continuing education and world travel.

Dr. Howard Krum, V'92

Dr. Howard Krum, Class of 1992, is an aquatic animal veterinarian and science writer who was the first full-time veterinarian for the New England Aquarium in Boston.

Dr. Krum signed on to help launch both the Georgia Aquarium and the Georgia Sea Turtle Center. He has been featured on the PBS television series *Scientific American Frontiers*, and his work with stranded sea turtles, large whales, and dolphins has been recognized on *NBC Nightly News*. His contributions to help create the world's largest aquarium were chronicled in the award-winning documentary *A Window to Wow!: The Exclusive Story of the Creation of the World's Largest Aquarium*.

With a longstanding goal to combine his love for animals, science, and creative communication, Dr. Krum has been dedicated to writing a seven-part book series, *An Animal Life*, based on fictional and actual experiences from attending Penn Vet. He has donated proceeds from his book to the Penn Vet Working Dog Center, SCAVMA, and other community projects. He also makes frequent trips from Vermont to Philadelphia to participate in events such as Parents & Partners Day and New Student Orientation. Most recently, he was invited to serve on the Dean's Alumni Council and Curriculum Review Board.



MCMANUS



KERN



GILBERT

2014 PENN VETERINARY ALUMNI ACHIEVEMENT AWARD

Presented for the first time this year, the Penn Veterinary Alumni Achievement Award recognizes alumni who have demonstrated extraordinary leadership and service to the veterinary profession through their work, research, or in a volunteer capacity.

Dr. Joanna Bassert, V'89

Dr. Joanna Bassert, a member of the Class of 1989, joined Manor College in 1992 as the Education Coordinator and became Director of the Program of Veterinary Technology in 1993. She helped develop Manor's first Internet-based course and first program website. She has taught a wide range of courses and presently teaches Introduction to Veterinary Technology and Anatomy and Physiology Laboratories. Her other projects include writing textbooks, producing teaching videos, and developing educational CDs.

Dr. Bassert helped establish the current language in the Pennsylvania Veterinary Medicine Practice Act regarding veterinary technicians. The language is consistent with recommendations by the AVMA and NAVTA, and it carves out a place for veterinary technicians as professionals.

As Dr. Bassert noted, "I see myself as a champion for the profession of veterinary technology. Many of my accomplishments professionally have come about because of my love and dedication to the VT profession and to the people who are part of it. I do not see myself simply as an educator, but rather as a person helping to build the profession of veterinary technology."

She added, "My greatest satisfaction in teaching is watching my students grow and mature as people."

Dr. Catherine McManus, V'02

Dr. Catherine McManus, Class of 2002, is board certified in the American College of Veterinary Preventive Medicine and currently serves as Director of Operations for Dallas Animal Services.

Prior to her work in shelter medicine, Dr. McManus was a veterinary epidemiologist with the Virginia

Department of Health and a Veterinary Corps Officer on active duty with the U.S. Army.

As noted in her nomination, "Cate McManus is the only individual from our class who went on to provide service and sacrifice to our country by nobly enlisting in the U.S. Armed Forces. As a U.S. Army Veterinary Corps officer, she served in active duty in Bethesda, Maryland. Here she excelled in her duties, earning awards such as the U.S. Veterinary Corps Above and Beyond Award in 2003, the U.S. Army Achievement Medal in 2003 and 2004, and the U.S. Army Commendation Medal in 2005. Cate ultimately earned the high rank of Major and is currently serving in the U.S. Army Reserves."

After helping protect public health through her role as a veterinary epidemiologist, Dr. McManus made the decision to become involved with shelter medicine—devoting three years of her life to become one of the first veterinarians to complete Maddie's Residency in Shelter Medicine at the University of Florida. In her current position, she helps countless numbers of Dallas citizens and their animals. Her unique career journey is one filled with community service, service to our country, and outstanding leadership in the veterinary profession.

ALUMNI RELATIONS STUDENT OF THE YEAR AWARD

The Alumni Relations Student of the Year Award recognizes students who have consistently demonstrated exceptional commitment and contributions to the University of Pennsylvania School of Veterinary Medicine, the Alumni Relations program, and Penn Vet alumni.

Zach Kern, V'14

The Dean's Alumni Council proudly recognized Zach Kern, who earned his VMD credentials in May. As noted in his nomination, Dr. Kern took it upon himself to meet with the alumni office to coordinate a class gift for the Class of 2014. He did so to leave a legacy—but more importantly, to create a culture of giving back among his classmates and future alumni.

Kern spearheaded the creation of the Alumni Career Coach program as a way for alumni to be a vital resource for students. He also helped bring the Veterinary Leadership Experience to Penn Vet and encouraged alumni attendance. The alumni who attended found it to be a very valuable experience.

An Opportunity Scholar and President of the Class of 2014, Kern takes advantage of all opportunities presented to him. His external clinical rotations have included the AVMA Governmental Relations Division, a cardiology rotation at Ohio State, orthopedics at North Carolina State, internal medicine at Animal Medical Center, internal and ER medicine at the Veterinary Emergency and Referral Group in Brooklyn, and soft tissue surgery and shelter medicine at the North Carolina Humane Alliance.

Sam Gilbert, V'15

Friendliness, professionalism, and enthusiasm for Penn Vet have established Sam Gilbert, Class of 2015, as one of our go-to student volunteers. He is the student most requested by name by the School's leadership to represent Penn Vet. After a prospective Board member spent a day on campus, he noted that the highlight of his entire day was the tour Gilbert provided of Ryan Hospital. Gilbert also came in early on his vacation day to take another prospective Board member on a tour, and once again it was a standout experience.

Gilbert is an NIH-Merial Veterinary Research Fellow and President of the Class of 2015. He has used his engineering undergraduate degree in his work with Dr. Gail Smith, designing and building a hands-free canine hip joint laxity evaluation device for use in PennHIP radiographic assessments.



NOMINATE CLASSMATES

Alumni are encouraged to nominate their classmates for the 2015 Alumni Award of Merit and the Alumni Achievement Award. Visit the Alumni section at www.vet.upenn.edu and choose the awards tab.

Questions may be directed to Kristen McMullen, Director of Alumni Relations, at kmcmul@vet.upenn.edu

MAY 2015

alumniweekend

PENN VETERINARY MEDICINE

Save the Date for Your Class Reunion May 15 & 16, 2015

Reunions for classes ending in a "5" or a "0"

Mark your calendar to celebrate with your Penn Vet classmates! Activities include class dinners, tours of New Bolton Center and Ryan Hospital, a Dean's Reception, Jazz Brunch, and much more! *Watch the Alumni tab at www.vet.upenn.edu for more information.*



Alumni Weekend Festivities

Thank you to all of our wonderful alumni who came to town for Alumni Weekend 2014! Classmates from years ending in '4' or '9' came together to celebrate their reunion years—and celebrate they did.

The festivities began with a packed house for the Dean's Reception at New Bolton Center on Friday, May 16. Reunion dinners followed at locations around the town of Kennett Square. Saturday's events included a jazz brunch featuring wonderful food and live jazz music as well as tours of Ryan Hospital. A very special thank you to all of our class agents and reunion chairs who made their reunions possible!

Many more photos from the weekend are available on the Penn Vet Flickr page.





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calendar

SEPTEMBER 2014

September 30, 2014 Penn Vet Surgical Series

A continuing education event with a focus on a variety of surgical topics

6:00 PM to 8:30 PM

Botto's Italian Line Restaurant

1411 Kings Highway

Swedesboro, NJ 08085

For more details and to register, please call Maria Calabrese at 215-573-9401.

OCTOBER 2014

October 7, 2014 First Tuesdays Lecture Series

A free lecture series for horse owners and horse enthusiasts

6:30 PM to 7:30 PM

New Bolton Center (Alumni Hall)

382 West Street Road

Kennett Square, PA 19348

October 22, 2014 Continuing Education Series

A bi-monthly continuing education opportunity for primary care veterinarians, technicians, and office staff
"CARDIOLOGY"

Presented by Dr. Margaret Sleeper, Chief, Section of Cardiology, and Associate Professor of Cardiology/Clinician Educator at Penn Vet

6:00 PM to 8:30 PM

Penn Vet's Vernon and

Shirley Hill Pavilion

380 South University Avenue

Philadelphia, PA 19104

To register, please call Megan

Nelson at 877-PENN-VET.

NOVEMBER 2014

November 4, 2014 First Tuesdays Lecture Series

6:30 PM to 7:30 PM

New Bolton Center (Alumni Hall)

382 West Street Road

Kennett Square, PA 19348

November 18, 2014 Penn Vet Surgical Series

6:00 PM to 8:30 PM

The Radnor Hotel

591 E. Lancaster Avenue

Wayne, PA 19087

For more details and to register, please call Maria Calabrese at 215-573-9401.

DECEMBER 2014

December 2, 2014 First Tuesdays Lecture Series

6:30 PM to 7:30 PM

New Bolton Center (Alumni Hall)

382 West Street Road, Kennett

Square, PA 19348

December 4, 2014 Continuing Education Series "EMERGENCY AND CRITICAL CARE"

Presented by Dr. Lesley King, Director of the Penn Vet Emergency and Critical Care Residency Program and Director, Intensive Care Unit, Ryan Hospital

6:00 PM to 8:30 PM

Penn Vet's Vernon and

Shirley Hill Pavilion

380 South University Avenue

Philadelphia, PA 19104

To register, please call Megan

Nelson at 877-PENN-VET.

December 8, 2014 Alumni Reception at the AAEP Convention

6:00 PM to 8:00 PM

Salt Lake City, UT

JANUARY 2015

January 18, 2015 Alumni Reception at NAVC Conference

7:00 PM to 9:00 PM

World Center Marriott

8701 World Center Drive

Orlando, FL 32821

MARCH 2015

March 11-12, 2015 Penn Annual Conference – Lectures and Exhibit Hall

Sheraton Philadelphia Downtown Hotel

201 N. 17th Street

Philadelphia, PA 19103

March 13, 2015 Penn Annual Conference – Wet Labs

Penn Vet Ryan Hospital

3900 Spruce Street

Philadelphia, PA 19104

For more information on these events, please contact Darleen Calahan, Special Events Coordinator, at coles@vet.upenn.edu or 215-746-2421.